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Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

BY J. N. CROUSE, D. D. S., CHICAGO, ILL.

It is not the object of the writer to discuss or describe methods of performing individual operations, nor methods of practice except such as relate directly to the business methods of a well-regulated dental office.

Believing that most dental practitioners fail in the executive or business part of a practice, and that this absence of business principles is the cause of many failures, we have undertaken this article, hoping to show wherein some of the mistakes occur in this direction and to be able to give a few hints or suggestions which may help younger practitioners.

It is taken for granted at the outset that every one who expects to succeed has already thoroughly prepared himself both in the theory and details of practice; this of necessity implies that a considerable amount of diligent study and even more of practical manipulation have been given, so that a reasonably correct diagnosis is assured, as well as ability to perform the varied operations which will be required. It would seem as if we were warranted in saying that the higher the degree of perfection in the preparation, both in theory and practical manipulation, the easier it will be to obtain a lucrative, successful practice; but the facts are, that the individual who possesses shrewd business ability and the tact necessary to grapple successfully with the many difficult problems which must be met by every practitioner, can succeed with far too little education and skill, while one professionally

well skilled, but lacking in these qualifications may utterly fail. This being the case, if business qualifications can be acquired in addition to skill and education, success will be pretty sure to follow.

What, then, are the desirable qualifications for a dentist? We should say: A liberal education, manipulative skill, artistic taste, business tact, industry, perseverance, good judgment, even temper, self-control, enthusiasm, and last, but not least, strict integrity. We believe that no profession requires such a variety of talent in its practitioners as the dental profession; no profession needs so much natural ability and breadth of culture; no profession so much demands men of a large type, who will be equal to all emergencies, for in no other profession are the requirements so numerous and exacting. Human nature—that subtle, undefinable, hard to understand, something, which reveals itself constantly in various shapes—this human nature must be met, understood and controlled before a man can become a successful operator, in the full sense of the word.

Every dentist with any amount of practice finds all sorts of dispositions and temperaments to deal with;—the pleasant and the disagreeable, the good natured and the cross, the reasonable and the unreasonable, the honest and the dishonest, the generous and the selfish, the appreciative and the unappreciative, the nervous people out of health, the hysterical subjects, the old maids and bachelors who are seldom well pleased, and the capricious, self-willed and ungoverned children—all of these must be met with, and dealt with, under the most trying circumstances; for the necessary suffering and torture will reveal a very human side to the most amiable disposition. And to meet them and be master of the situation the dentist must first be fully master of himself. A distinguished educator has said that "all education can be summed up as knowing yourself, knowing your fellow-man and how to adapt yourself to your fellow-man." We would especially emphasize the "knowing yourself." A dentist, of all men, must be able to understand and to control himself under all circumstances. He must also be able to readily understand and to control his patients; must possess persuasive ability and enormous powers of endurance. Is it too much to say that he needs all the logic of the lawyer, the scientific knowledge of the physician and

the high moral ideas and sense of responsibility of the clergyman combined?

If the qualifications herein described are necessary for a successful practitioner of dentistry, it is important that before beginning the study of dentistry he has acquired a very considerable cultivation, although a dentist's education need not stop after he commences practice; indeed; it should not stop, and we believe it is a great mistake for dentists to cease to study and to keep themselves posted and alive to interests others than simply the mere routine work of practice. The occupation of dentistry has a tendency to narrow the mind rather than broaden it, especially if one confines himself exclusively to this routine occupation; therefore a dentist should connect himself with studies and interests outside of the dental profession.

We feel quite sure that we have not overstated the requirements a dentist should possess. We have said he should be logical, as we believe a logical man who is able to reason from cause and effect is much better prepared to perform the various operations successfully and with good judgment than one not possessed of a logical mind. We have said he should be a physician. We should regard a dentist deficient if he were not able to prescribe hygienically for his patients with as much intelligence as the average practitioner of medicine. Not that we wish to under estimate the ability of the average practitioner of medicine, but we wish the dentist to have intelligence enough to understand the diseases of the mouth and the causes of such, and also to be able to prescribe a preventive treatment in connection with the more technical processes of filling the teeth, and to do this requires a good degree of hygienic knowledge.

We have said that a dentist should be a good judge of human nature and be able to control his various patients with their different peculiarities, and this requires more than average intelligence. Much, however, can be acquired by practice and study of the subject. Especially is this true with children. This important faculty is so closely related to the various qualifications touched upon in other parts of this paper that its advantages can readily be seen. For instance, if the operator is able to control an unruly and ungoverned child successfully, this qualification is soon made known to other parents who may have failed in their efforts to have their children's teeth properly cared for. If he shows a

good degree of intelligence as to preventive treatment, this fact is soon made known to the friends of those whom he may be serving. If he successfully takes care of a nervous, hysterical woman, she never forsakes him. If an invalid, who by chance has been less favorably treated in other hands, is handled with skill and care, he is more willing to compensate the operator.

Let us consider the office and its equipments. Selecting an office requires much care and good judgment. The important items to be taken into consideration are: First, good light, a supply of water, and toilet conveniences. Second, the location, which should be such as to enable those who do not possess their own carriage, to reach the office by public conveyance without too much walking. Whether in a public building or a private house the approach should be such as to denote thrift. A long ascent of stairs is always objectionable, but in large cities the general use of elevators does away with this objection. In small towns the securing of a suitable office is often a difficult and sometimes a well-nigh impossible task.

The office and its furnishings should be selected not only with a view to the needs of the occupant but also to his financial ability. As a rule a dentist's necessary expenses are out of proportion to his income, and his actual expenses are absurdly large compared with what he earns; hence it naturally follows that large numbers of practitioners begin their professional career with a debt, the years come and go and find them always in debt, until at last the end comes, the struggle is over, and their families are left with only a legacy of debt. As well might a man attempt to run a race with a millstone around his neck as to start out in professional life relying upon credit. To be embarrassed with obligations that one cannot meet takes all the courage and vim out of a man; inability to pay leads to excuses, excuses too often lead to falsification; and before he knows it, the man has lost his own self-respect and the respect of others.

To possess an office furnished with desirable appointments should be the laudable ambition of every practitioner, but it is not a necessity and should be foregone until it can be afforded. Absolute neatness and cleanliness are indispensable, both in the operator and in every appointment of his office. Nothing will sooner prejudice a patient than even a suspicion of a lack in this respect. If cash is limited, invest what money you have at your

command in your implements for work, even if it necessitates simplicity in your office furniture almost to bareness.

We will give a little in detail as to what are the requirements in the way of implements, tools, and instruments to enable the dentist to render good service. An operating chair; a cuspidor, which can be easily removed and cleaned; a bracket and tray; and a place in which to keep instruments where they can be arranged in order, and where the operator can lay his hand on anything needed without too much searching. As to quality of chair—the writer, in the beginning of his practice, filled teeth with gold with the patient in a rocking chair, on a platform made of dry goods boxes, and the tray which held the gold, instruments and annealing lamp rested in the patient's lap. This occurred in towns adjoining his regular location, in which there were no dentists, and is only mentioned here to show what can be done in a case of necessity. It served his purpose for the time, and was the means of getting these patients to come for work afterwards to his regular office, which was, of course, better equipped.

Dentists often purchase many useless implements. A reasonably complete set of pluggers can be selected, with not over 18 in number, and a few odd shapes added; more than this number are seldom used, but the extras which are never used often amount to many times more than those that are used. There is at this time a rage for electric motors for dental engines; these are expensive luxuries and from an extensive experience with them we feel warranted in saying that a treadle engine answers every purpose, especially as electric apparatuses are generally only experimental as yet.

The number of shapes and sizes of burs is altogether too great—there are nine different shapes and each runs in size from No. 8 to No. 000, making in all of different sizes and shapes more than 100. When these are placed in a holder it is very confusing to select just the one that will best serve the purpose and so is a waste of time. If every alternate size from No. 8 down was omitted, reducing the number of burs one-half, it would be a great advantage to the operator, and we could well discard all but four of the shapes. As a matter of actual utility the round bur will do nearly all that is required in the preparation of cavities for filling; occasionally a small wheel is useful. For our purposes the round bur generally and sometimes a wheel are all we require

in the preparation of cavities. We predict that when it is fully understood what can be accomplished with the improved form of blades in the round bur, but few of the other shapes will be used. When studying economy these few details at least show where less money is required in the necessary outlay.

Next, you must be able to impress your patient with the feeling that you are thorough, careful and skillful, and there is but one way to so impress them, and that is by being thorough, careful and skillful. Never let an operation leave your hand until it is as perfect as you can make it. Start out with this determination and it will be of more importance to you than the most elegantly appointed office. But after having done your work to the best of your ability comes the problem of how to make your patients value the services which have been rendered, sufficiently, to be willing to pay for them. This question and some of the most advantageous methods of operating will be considered in the succeeding article.

[TO BE CONTINUED.]

A NEW METHOD OF APPLYING FORCE IN THE REGULATION OF TEETH.

BY EDWARD H. ANGLE, D. D. S., MINNEAPOLIS, MINN.

For a long time I have been experimenting with a novel way of exerting force to a moving tooth and so well pleased am I with the results that I am convinced the plan is destined to occupy a permanent place in Orthodontia.

The power is derived by the lengthening of wire resulting from pinching or compressing its bulk laterally between suitably formed beaks of strong pliers.

In order that the reader may become familiar with this method of exerting pressure in the movement of teeth a few cases from practice will illustrate a few of the many modifications to which it is susceptible.

Fig. 1 shows an inlocked incisor being moved outward. A rod of metal of suitable length to extend from the anchor tooth and bear against the moving incisor, is held in position by one end being made to rest in a pit formed in the enamel of a deciduous second molar, which has been selected as the anchor tooth.

The other end of the wire is secured in a section of tubing soldered to an accurately fitting band cemented upon the incisor.

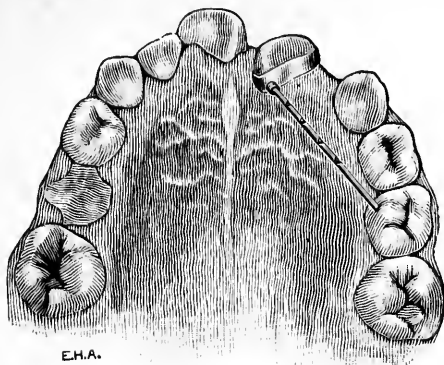


Fig. 1.

Force is exerted upon the moving tooth by occasionally pinching the wire with the Regulating Pliers shown in Fig. 2.

Each pinch of the wire causes it to be lengthened about one one-hundredths of an inch. The shaded lepression in the wire

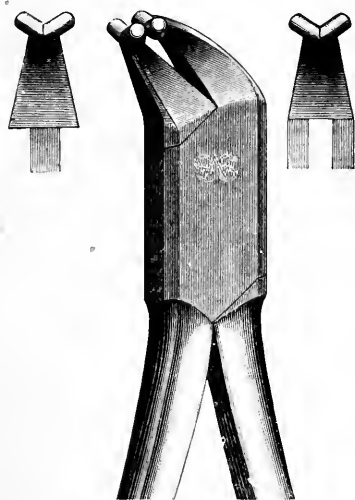


Fig. 2.

well shown in the engraving illustrates the pinches made by the pliers. Two or three pinches each day or alternate day will be found sufficient to rapidly move the tooth into its desired position. In the case here shown the movement of rotation as well as out-

ward being necessary the force was directed against one side of the tooth, thereby accomplishing both movements at the same time.

After the tooth had been moved into the desired position, it was retained for a few days by the appliance shown, after which the appliance was removed and the further retention of the tooth effected by the proper occlusion of the opposing inferior incisors.

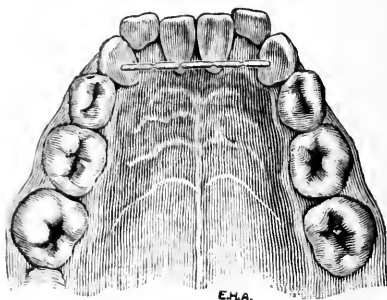


Fig. 3.

Fig. 3* shows another case in which a modification of the same plan was used in moving outward two inferior deciduous cuspids which were becoming bunched as the result of lateral pressure. Pits were drilled through the enamel on the lingual surfaces of the cuspids into which was made to rest the ends of the wire to

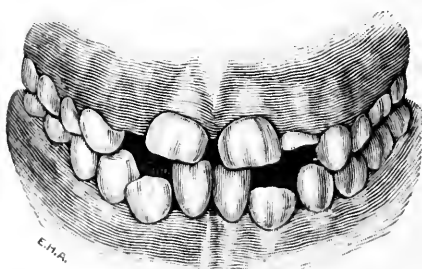


Fig. 4.

be lengthened. In this case it was not only necessary to move outward the inferior cuspids, in order to provide space for the inferior incisors, but also to move outward the superior deciduous cuspids that space might be provided for the incoming superior incisors. This was accomplished by their occlusion with the

*From the Fourth Edition of the Angle System of treating Dental Irregularities and Fractures of the Maxilla, now in press S. S. White Dental Manufacturing Co., publishers.

inferior cuspids as shown in Fig. 4 as the wire was gradually lengthened by pinches from the regulating pliers. As all four cuspids were being moved outward it was necessary that the process should be most gradual, hence the wire was lengthened but once a week. After sufficient space had been secured it was maintained by the lengthened wire already in position until all the incisors had become fully erupted and firmly established in their normal positions.

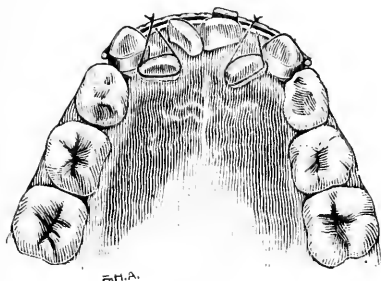


Fig. 5.

Fig. 5 shows a modification of the above plan in a similar case in which the ends of the wire to be lengthened were soldered to the labial surfaces of accurately fitting bands cemented upon the deciduous cuspids. As the cuspids were gradually moved further apart the incisors were moved outward by wire ligatures occasionally tightened by twisting the ends which should always be left one-eighth of an inch long and bent not to interfere with the lip.

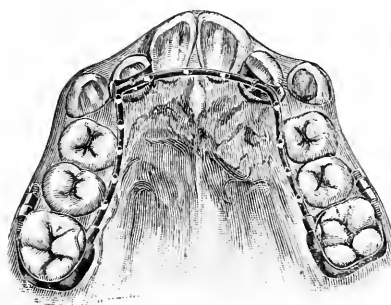


Fig. 6.

Fig. 6 shows the application of this method in treatment of a very common form of Dental Irregularity, in which it is desirable to exert pressure outward upon the bicuspids as well as forward

and outward upon the lateral incisors in order to provide space in the arch for the erupting cuspids. The first molars were selected as the anchor teeth and encircled by the adjustable clamp bands to which were soldered sections of tubing which served as sockets into which rested the ends of the wire to be lengthened. This wire was bent to conform to the inner circle of the dental arch and was held in position by its anterior part, resting in staples, soldered to the lingual surfaces of bands accurately fitted and cemented upon the lateral incisors. The united ends of the bands were left about one sixteenth of an inch in length against which rested the sharp curves of the wire.

By pinching the wire with the regulating pliers in the region of the bicuspid the incisors were moved forward, while pinching the wire between the laterals forced the laterals farther apart, thus providing space for the central incisors. The bicuspid were gradually moved outward by the wire resting in contact with their lingual surfaces; pressure being exerted by forcing the wire against them with each pinch of the pliers.

The reader will be surprised to know how much lateral pressure may be brought to bear upon the bicuspid, or in all similar cases by forcing the wire against the teeth just at the instant it is being pinched but in cases where extensive lateral pressure is necessary, as in the following case, a piece of rubber stretched between tooth and wire will be very effectual. After the rubber has moved the tooth it should be removed and the wire bent outward against the tooth when the rubber may again be applied if necessary.

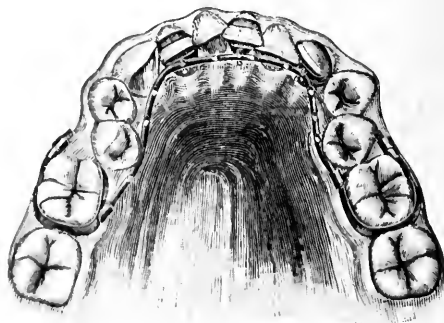


Fig. 7.

After the teeth had been moved into the desired position they were retained by the device already described for their movement,

which will be found nearly the ideal retaining appliance in all similar cases, as it is so cleanly, compact and efficient—is not under the control of the patient and can be worn any length of time without inconvenience.

Fig. 7 represents a case in which a bunched and overlapped condition of all the lower teeth anterior to the molars existed, necessitating a general enlargement of the arch in the region of these teeth, which was accomplished after the methods already described and the device so clearly shown in the engraving, which was also used as a retainer after the teeth had been moved outward.

It is not to be supposed that this method will supersede the use of the jack-screws although in many cases it will be found more desirable as it is so extremely simple and compact. Its greatest place of usefulness will be found in the movement of the teeth of young children, where great force is necessary and the smallest of appliances desirable.

The wire for lengthening may be made of platinized gold, silver, brass, or what is much better than all a fine quality of German silver, which takes the desirable degree of temper at the point of pinching, so that the wire maintains the same stiffness as if the depressions by pinches had not been made.

The most desirable size, as well as materials, is found in the author's appliances for regulating the teeth and is known as the anchor and retaining wire G.

The Regulating Pliers shown in Fig. 2, are beautifully adapted to the work for which they are intended and are so shaped as to reach all parts of the mouth. They should never be used in pinching large or hard wire or they will be injured so that evenness and accuracy, so necessary, will be impossible.

THE INDEX MEDICUS.

SPECIAL NOTICE.

This valuable epitomizer of all medical, dental and scientific work is about to be discontinued from lack of support. The nature of the work is such that it cannot depend on popular support for existence; the price, ten dollars a year, may seem considerable. Every dental library belonging to a dental society ought to be a subscriber and every writer who wishes to be accurate should be also. It is said that five hundred additional subscribers are needed to pay the cost of publication. Will you be one of them? Will you interest your society? Geo. S. Davis is the publisher, Detroit, Michigan.

Reports of Societies.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

THE nineteenth Annual Meeting of the Society at Geneva, Switzerland, Aug. 6, 7 and 8, was not as large as some previous meetings, but the interest was well sustained throughout. The sessions were held in the Athenee, where the picture-clad walls of an assembly room, not too large for the gathering, gave an air of club-room comfort which contributed not a little to the feeling of comradeship that dominated the occasion.

President BRYAN rapped to order at eight o'clock on Monday, and at the close of the business session delivered the Annual Address, a portion of which is here given.

ADDRESS OF THE PRESIDENT.

DR. LYMAN C. BRYAN, BASEL.

Fellow Officers and Members of the American Dental Society of Europe:

Just twenty years ago, on July 2, 1874, the first regular Annual Meeting of this Society was held in Geneva under the Presidency of Dr. Charles T. Terry, then of Zurich—the society having been organized on the Rigi Mount, July 4, 1893, and a semi-annual meeting having been held in Basel in November of that year; and invitations sent out to all American dentists practicing in Europe.

The Society, organized by the five Americans then practicing in Switzerland, grew rapidly, and soon numbered within its membership the most of the prominent dentists of Europe and is still the only general European association of American dentists. Our membership of seventy-five extends from Sweden to Italy and America, and includes the active members, one or more in each large city of Europe, and our honorary list, on which we have placed our distinguished American brethren who have occasionally met with us, and others whose services to dental science and art demand special recognition.

On this honorary list we have also placed those of our own membership who have done yeomen's work for the Society and the public in the past years and have again returned to the land they love, either to enjoy the fruits of their labor or give their

riper years of experience to their fellow countrymen, and spend their prime of life and declining years in the midst of the people speaking their own language, and in that fellowship which one feels for those of kindred nationality from whom one has been separated for years by the varying currents of the great ocean of life.

Some of those early workers in the then virgin dental fields of old Europe are still plying their calling among us with steady hand and sturdy wills, and are among our most able and respected members, and some have sons, who are active in the struggle for existence and eminence, who are taking as active an interest in their father's practice as did their elders twenty years ago.

May the Terrys and Fields of the second generation honor the profession as their fathers have, and may they show as much energy when the gray hairs mingle with their raven locks as Dr. Field, who, after many years of honorary membership, now comes forward with his application for active membership.

I have here a letter from Dr. Wright, now of Cincinnati, one of the founders of the Society, who, after twelve years of absence, writes us with a young and buoyant spirit to tell us his heart beats warm for the friends of his youthful years in the profession, and for the Society. We regret that so few of those old time friends of his are with us today to receive his kindly message. It will do us all good, however to hear such pleasant words from one whom so few of us knew personally, but of whom we have heard so much to endear him to us.

(Extracts from Dr. Wright's letter.)

"When I saw the notice in one of the American periodicals that the 'Society will hold its annual meeting in Geneva, Aug. 6, 7, and 8, 1894,' memory waked up and began throwing out beautiful stereoptican views of the meeting twenty years ago. On July 4th, 1873, a few Americans practicing in Switzerland had met on the Rigi, to 'celebrate' and to discuss the question of founding a dental society. In fact, they gave birth to a baby-society. Terry, Williams, Field, Van Marter and Wright were the 'mothers.' A few months later the baby was christened in Basel in the office of Van Marter and Wright, where ten or twelve earnest Americans met and began work. The next meeting was at Geneva, July 2, 1874, in the Hotel de la Paix. At that meeting Abbot with his staff of friends, Dumont, Paetsch, N. S. Jenkins, Young and others, first gave countenance

to the young Society. Dr. Gregory, of Lyons, looking like a portrait of George Washington, first mixed his wine with quaint wit and wisdom at the social board at Geneva, that year. Dr. Abbot was elected President, and Paris was selected as the place for the next meeting. You can easily believe that such a combination, Abbot and Paris, tended to the permanent establishment of the Society.

At Interlaken wonderful legal talent was displayed by dear departed Kingsley, and a new organization was effected * * * The name of the Society was sneered at by English and German writers, and some of our own members were influenced to propose a change. We were to be 'A society of Americans practising in Europe,' etc.; but not to assume the proud name of The A. D. S. E., but after a fight over it at Homburg, the old name was preserved, and is today honored by all. * * * * Miller came into the Society at Interlaken, I believe; at any rate, wherever he made his first appearance, he was found with his pockets full of experiments. He showed himself even then as a 'fact-hunter,' and facts were as difficult to get then as now.

We were once called 'expatriated dentists' by a caustic English writer, but when we met as the American Dental Society of Europe, patriotism made America of Geneva or Paris or Deutschland. Yankeeland from Maine to Texas, from New York to San Francisco, was for the time transplanted to Europe. * * * *

To be an ex-President is to me the most highly appreciated title and honor that has ever fallen to my lot, and I esteem it a privilege to offer these reminiscences. It is the time of the Rip Van Winkle sleep in the Catskill mountains, and I am afraid that the old boys are grayer than they were and wear glasses at the chair, but I know from my own pulsations that their hearts are still young. Long life to them and to the Society they love so well.

Yours fraternally, C. M. WRIGHT."

MONDAY AFTERNOON.

DR. MONK, Wiesbaden, presented, in behalf of a colleague, models of the malformed mouth of a child of ten years, whose head had been crushed at birth, and desired the opinion of members as to the best mode of treatment. The front teeth failed of occlusion by the space of three-eighths of an inch, and the condyles

were abnormally short. Some effort had already been made to better the condition by elastic bands upon the lower jaw.

DR. ROYCE, Tunbridge-Wells: "It seems to be a case of arrested development of the anterior portion of both the upper and lower maxillary bones."

DR. WM. MITCHELL, London: "The deformity has been augmented by the protrusion of the tongue, increasing the space already existing between upper and lower incisors. The patient being quite young, the yielding condition of the bones may be taken advantage of by capping the permanent molars—the upper preferably,—and using these teeth as a fulcrum bringing pressure upon the chin by means of a cap over the head. To prevent the protrusion of the tongue a plate could be arranged with a *cul de sac* (to be worn constantly except at meal times), so that it could not pass between the teeth. The fulcrum could be made in connection with this plate, if deemed advisable. What is best in such a case could only be decided after trial of different methods."

A member: "It would be advisable to extract the temporary molars."

DR. LUCE, Stuttgart: "The paper that I have prepared has reference to a case having features similar to this."

PRESIDENT BRYAN: "It will be most helpful, then, to read it now."

A REGULATING CASE IN PRACTICE.

BY CHAS. E. LUCE, D.D.S. STUTTGART.

I am led to present this case, as I think it unique and may possess some points of interest.

Carl v. H. aged 20 years, of most respectable parentage, presented himself for treatment, the mouth showing the following abnormal conditions: the roots of the first and second molars, both superior and inferior, were still in position and abscessed; there was well pronounced necrosis on both sides of the lower jaw in the neighborhood of the first molars, apparent by the copious flow of pus upon pressure, and blue tense gum. The inferior wisdom teeth were just erupting; the bicuspid, both superior and inferior were in good condition, but articulated poorly, the cuspids were of good quality but showed Hutchinson-like pointed cusps; the superior laterals were well shaped and of good quality, the superior centrals were undoubtedly Hutchinson teeth, as the young man related that formerly the lower half of the teeth was much thinner

and notched, that at an early age cavities formed and extended through the teeth and eventually this part broke away, leaving the short crowns as presented; the part remaining was three-sixteenths of one inch in length, with the dentine showing at the fractured edge, soft and sensitive. The inferior incisors were also teeth of the same type, with blade-like cutting edges; the two centrals were badly placed, their distal surfaces presenting toward the front and the teeth at the cutting edges were at least one-fourth inch apart.



Fig. 1.

The only articulation and this of no practical value was that of the second bicuspid; the opening between the incisor teeth was three-eighths inch and the tongue, which had become abnormally large, was in a constant state of irritation from contact with the irregular surfaces of the teeth forming the opening; the lips were abnormally thick and muscular, caused by constant effort in grasping the food, in fact, the lips and tongue comprised about all the means the young man had for preparing the food for his stomach.

The patient was melancholic, and suffered much from a faulty digestion.

As it was deemed inadvisable to administer an anæsthetic, the diseased roots were removed with the local use of cocaine, 5 per

cent. being used, the patient previously having had two hypodermic injections of morphine; with the exception of the necrosed parts the mouth healed quickly, and they yielded eventually to the treatment with aromatic sulphuric acid and antiseptic mouth washes. Two months later the mouth presented a healthy appearance, the breath had lost its fetid odor and the general health was improved. Taking up the regulating of the teeth, it seemed of the utmost importance to broaden the superior arch and allow the bicuspid to articulate properly, in which event I hoped that the distance between the superior and inferior anterior teeth would be considerably lessened, the arch was broadened $\frac{1}{8}$ inch by means of piano-wire, the bicuspid carrying caps which conveyed the pressure, but the opening at the front was not diminished as much as I had hoped.

The inferior centrals were rotated and brought into position by means of spring wire attached to the teeth by gold bands and sprung around the second bicuspid on either side and tied with linen thread to prevent slipping, the rotating was quickly accomplished and the four inferior incisors were secured by gold bands soldered together at their approximal surfaces and cemented to the teeth.

The treatment of the superior central incisors was difficult and tedious, they were exquisitely sensitive and I was only able to devitalize the pulps by first applying a tiny particle of arsenic, in combination with creosote and oil of cloves, to the sensitive dentine and at the next sitting getting a little deeper and so on for some six sittings until I reached the pulp itself; the pulps were eventually removed, the canals filled with gutta-percha points in combination with cajuput oil and iodoform, and after cutting nearly down to the gums, Richmond crowns were inserted of a sufficient length to nearly articulate with the inferior incisors, gold dentures were made, supplying the missing molars, and half-round gold wires, attached to either plate at the second molar tooth were passed around in front of all the teeth, both superior and inferior, to counteract the outward pressure of the tongue. The inferior wire has also served to draw in and elevate the inferior incisors until now the antagonism is fairly good.

One interesting phase of the case was the drawing down of the superior lateral, after the completion of the crowns, that is the centrals; the laterals were ludicrously short. Gold bands,

carrying vertical tubes, were cemented to both teeth and a spring wire, suitably formed, spanned from one lateral to the other, the ends of the wire resting in the tubes, a double hook was prepared from 16-carat gold plate, one hook passing around the wire and the other hooked end being made broader was sprung over the cutting edges of the centrals. It is evident that there would be constant downward tension upon the two laterals, the teeth were brought downward to a considerable extent, but unfortunately the young man was absent from town for a few weeks, and when I next saw him the wire had been removed and the teeth had receded somewhat; at present the laterals are still too short; yet in the mouth they do not look badly and by comparing the two models it will be seen that a good deal has been accomplished.

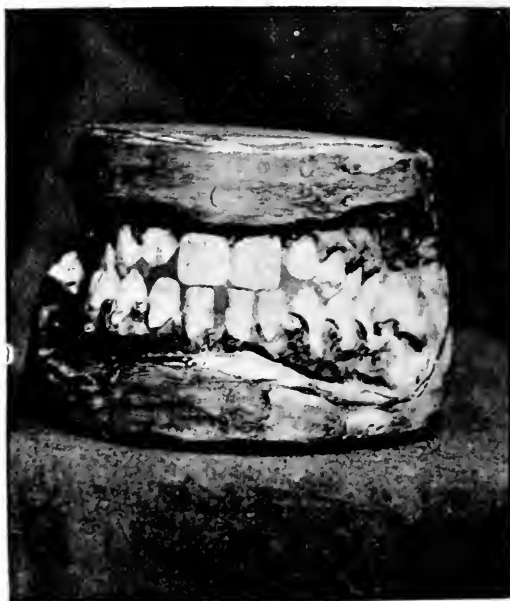


Fig. 2.

I am of the opinion that the abnormal condition of things in this young man's mouth occurred in the following manner: At the age of thirteen the first molars were entirely broken down, only the roots remaining *in situ*; the second molars were carious, with their pulps exposed and aching with every effort of mastication; the breaking away of the superior central crowns made

an opening into which the tongue readily found entrance, this opening, being at the beginning narrow, naturally the inferior maxillary would be depressed sufficiently to afford a comfortable space for the tongue; this was the usual position of the tongue, always held between the anterior teeth and protruding between the lips, except when they were closed by conscious effort, not a very prepossessing appearance, as one can well imagine.

By day, or during sleep, the muscles of mastication were imparting pressure upon the tongue through the twelve anterior teeth, which naturally, in the process of time, moved them outward and served to shorten them as well by direct pressure into the socket, this would occur at a favorable age for such movement, and the lack of articulation between the bicuspid, which occurred while the tongue was held between the anterior teeth, would eventually allow them (the bicuspid) to lengthen, therefore we find the identical condition as presented.

As is well known, the unexpected and inexplicable often occur in regulating operations. I must admit that the articulation of the anterior teeth has been improved much more than the efforts directed to that end would seem to indicate; it is possible that the insertion of the two Richmond crowns upon the superior central roots; may have precluded the placing of the tongue between the teeth effectually and in conjunction with the bands which have served to draw the teeth inward, the inferior teeth have, as it were, "risen to the occasion."

DR. MITCHELL: "Teeth can often be elongated by the application of small, round, not flat, rubber bands. The ring must not irritate the gum. Tie to a piece of silk."

DR. HUGENSCHMIDT, Paris: "Last spring I had a young lady aged 16, who presented herself with a separation of thirty millimeters between the biting edges of her incisors. I made a plate to enlarge the arch, and after six weeks treatment the separation was reduced to eight millimeters, at which time the treatment was discontinued, as the patient had to leave the city."

DR. ROYCE then read the following paper:

ON THE ETIOLOGY OF DEFECTIVE ENAMEL.

By W. E. ROYCE, D. D. S., Tunbridge Wells.

The defects referred to in the above heading are those usually known as congenital, and vary in extent from the slightest pit, to nearly the entire absence of the enamel.

I need not take your time to fully describe these teeth; such able articles as those of Dr. Frank Abbott in the August number, 1891, of the *Dental Cosmos*, and of Dr. Otto Zsigmondy in the September number, 1893, of the same journal, have done much to make their microscopical appearance known; while we are all far too familiar with them microscopically.

While it cannot be denied that some of these lesions are due to pre-natal influences, still I have come to believe that a very great majority of them are caused subsequent to birth.

A hasty review of the most important points in the development of the teeth may help us better to understand how and when these defects may be caused.

We know that a fold of the mucous membrane of the mouth dips down into the jaw, and forms a cap-like structure which becomes the enamel organ, and that the papilla—which afterward becomes the dental pulp—is developed from the connective tissue below. That upon the outer surface of the pulp, are found the odontoblasts to form the dentine, while upon the inner surface of the cap-like enamel organ are the ameloblasts, starting from a common point, work from each other, the one forming dentine, the other enamel—the dentine being formed slightly in advance of the enamel.

Now it is highly probable, that this process of development is often interrupted, or that it proceeds more rapidly at some times, than at others; but so long as this interruption acts alike upon the odontoblasts and the ameloblasts, no deformity in the tooth will result. On the other hand, any cause which interrupts the action of the ameloblasts, while the action of the odontoblasts is still continued, will cause a defect in the enamel, in direct proportion to the length of the time such cause continues.

Reference to Professor Peirce's chart* shows us, that at birth the enamel has already begun to develop upon the cusps of the six-year-old molars, and that at one year it is well advanced.

I wish to call especial attention to this fact because these are the teeth most often affected. It is rare to find any of the teeth pitted, without the six-year-old molars being also involved. Most often there is in the young tooth a deposit of enamel upon each cusp, while the rest of the grinding surface, and more or less of

*Fig. 1. Calcification of the Deciduous teeth. Copy of Prof. Peirce's chart, page 636 Vol. III. American System of Dentistry. Fig. 2. Calcification of the Permanent teeth, page 644 Vol III. Ibid. [Cuts omitted. Ed.]

the sides are denuded. This deposit of enamel upon the cusp is often lost, and the grinding surface becomes concave in later years.

There is another point worthy of notice in this connection; namely, the cord of the six-year molar is usually developed directly from the mucous membrane of the mouth, while the cords of the anterior teeth arise from the cords of the corresponding temporary teeth.

The enamel organ of the first molar, therefore, would seem to be in more direct relation to the mucous membrane of the mouth than that of any other permanent tooth. We may therefore arrive at this conclusion,—The influence which causes this trouble is one which acts upon the enamel organ much more than it does upon the pulp, and that usually this action is commenced during the first year after birth.

When we consider how very few children suffer from acute exanthems during the first year of their lives, we realize what a small proportion of cases of pitted teeth can be attributed to that cause, even though we admit that exanthems can produce it.

Again, there is no reason to believe that exanthems, and many other diseases which are popularly supposed to produce this trouble, do not affect the pulp equally with the enamel organ, and so possibly produce other defects, but not this one.

Remembering that the enamel organ is formed from the epithelium of the mouth, and that during its creative period it remains in close relation to it, it seems safe to say that whatever affects the mucous membrane, is likely to produce a similar effect upon the enamel organ. If the enamel organ is inflamed it cannot do its work. If the mucous membrane is inflamed it is most natural to suppose that the enamel organ will suffer with it. Broadly speaking then, we may repeat what Mr. Jonathan Hutchinson told us twenty years ago—that stomatitis is the cause of defective enamel. We may go further with him, and say that while it is not always the case, in a very great majority of cases stomatitis is caused by mercury. I believe we may go even further and attribute to hereditary mercurialization what Hutchinson attributes to hereditary syphilis. The fact that these teeth are much more common in England than in America, first attracted my attention to them, and in my own mind I associated them with the free use of mercury long before I knew that Hutchinson had written upon the subject. Having, after years of observation, come to this belief, I

undertook to test my theory by experiments. The experiments in regard to the hereditary effect of mercury are not yet completed; at a later day I hope to place the results before you. Those relating to its direct action were I think, sufficiently successful to justify my presenting them.

I took for the experiment a litter of two weeks old healthy puppies. One was treated with one-half grain doses of calomel, another with one grain doses of Grey Powder (*Hydrargyrum cum Creta*) daily, while a third was not treated. The drug was discontinued whenever the dogs showed the slightest ill effects. This treatment was continued till they were two months old. I con-



Fig. 3. Skull of dog treated with calomel.

sidered it essential that I present the skulls of the three dogs, treated and not treated, as I have said.

The originality and ingenuity those puppies showed in getting killed is almost beyond belief. Time after time I started the experiment; time after time some new method of suicide was discovered. At last I thought success was within reach; but alas for such hopes! Just as the permanent teeth were beginning to erupt, the puppy that had not been treated, at the same moment clogged the wheel of a bicycle and of science—and I have but two skulls to show.

The smaller one was treated with calomel, and its effect upon the teeth is very manifest. (Fig. 3.) I now think that smaller doses of calomel would have produced as great, or even greater

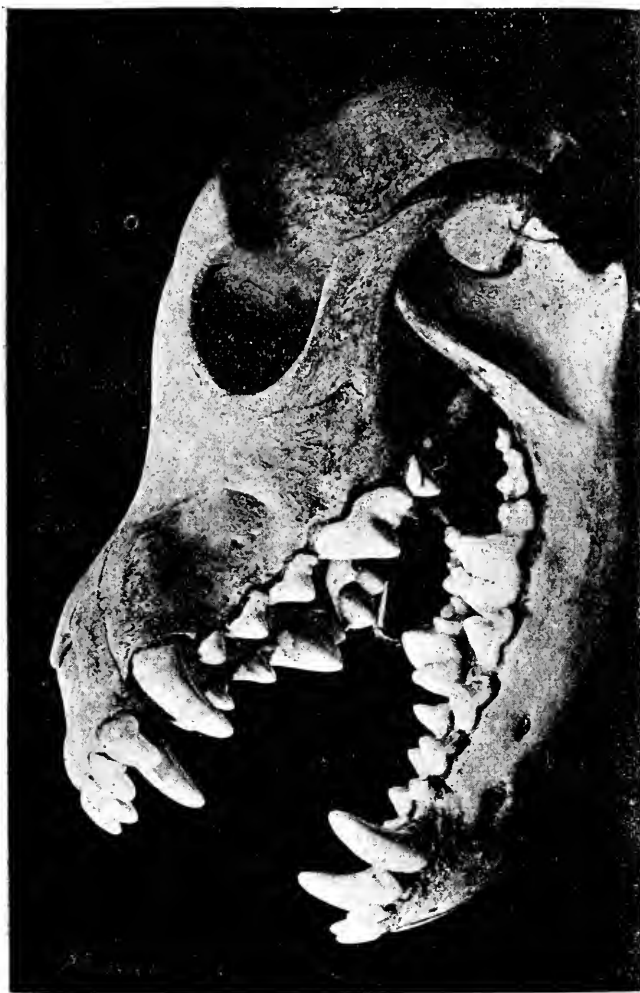


Fig. 4. Skull of dog treated with Grey Powder.

results. The larger one was treated with Grey Powder, and there is no apparent effect of such treatment upon the teeth. (Fig. 4.)* Nevertheless, I believe that Grey Powder is accountable for many of these defects. This is my reason—Mercury has two actions, local

*Since writing my paper I have found a pit on each of the superior second molars.

and constitutional. The local action—such as the action of calomel upon the bowel and liver—we need not take time to discuss. Mercurial stomatitis is produced by its constitutional action, and we have the best of authority for saying that the constitutional effects of mercury are identical, however exhibited.

Dr. J. Mitchell Bruce says: "In the stomach mercurials combine with the chloride of sodium of the secretions, and, whatever their original form, are converted into a double chloride of sodium and mercury, which further unites with the albuminous juices to form a complex molecule of mercury, sodium, chlorine and albumen. This compound although precipitated at first, is soluble in an excess either of chloride of sodium, or of albumen; exists in the stomach, therefore in solution; and is readily diffusible and easily absorbed."

Again, he says: "Mercury quickly leaves the blood and enters the tissues, where it is apt to remain almost indefinitely, being excreted with comparative slowness, especially when the kidneys are diseased. It has been found in every organ of the body, most abundantly in the liver."

As the quantity of chloride of sodium contained in the stomach is limited, we can easily understand how mercuric salts are more easily absorbed than mercurous salts, while metallic mercury would be absorbed still more slowly. We also understand why large doses of calomel or mercury produce no more effect than small ones. One-half grain of calomel given in six doses of one-twelfth grain, will produce more effect than six grains given as a single dose. This fact is most important, as children are, for safety's sake, given small doses.

Idiosyncrasy would render some children peculiarly susceptible to this drug.

Many apparently hereditary effects can also be accounted for by the use of mercury. Several children of the same family, or mother and child, have defective enamel. Inquiry usually reveals the fact that they have been treated by the same doctor, or attended by the same nurse, and like causes have produced like effects in each case.

We cannot, however, ignore the fact that there are cases of imperfectly formed enamel, where the cause must have existed before birth.

The casts which I present show characteristic mercurial teeth, according to Hutchinson. (Figs. 5 and 6 and 8.) As the teeth are temporary the stomatitis must have occurred about ten weeks before birth.

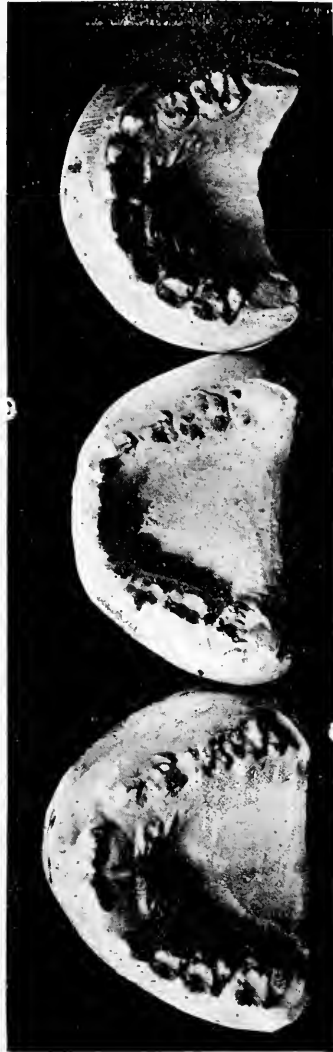


Fig. 5.

Figs. 5 and 6. Pitted temporary molars.

Fig. 6.

Fig. 7. Same mouth with some of the permanent molars erupted. The central incisors have small Hutchinson notches.

Fig. 7.

Whether mercury was administered to the mother at that time or whether it had been administered to one of the parents years

before and had been stored in the system, I have been unable to ascertain. Some of the permanent teeth of the patient have now erupted (Fig. 7), and they are not only defective in enamel, but the central incisors have small Hutchinson notches. The elder brother of the patient has mercurial teeth, while the teeth of two sisters, born between the brothers, are normal.

We have been in the habit, in these cases, of laying the trouble to hereditary syphilis. Why, necessarily, syphilis?

I think it has been proven beyond doubt that mercury administered to a child while the enamel is being formed, may interrupt its development. Is it not more natural to suppose that the effects of mercury may be transmitted than that quite another

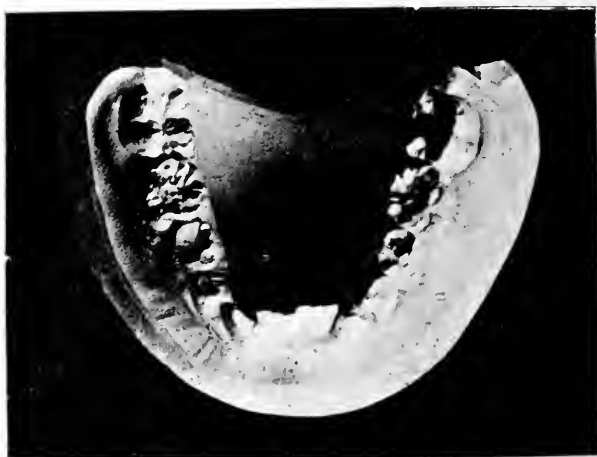


Fig. 8. Pitted temporary molars, presented by Dr. Mitchell.

cause should be transmitted, and produce identical results? Hutchinson says that the six-year molars are the "test teeth for mercury." I have never seen Hutchinson notches unless they were accompanied by mercurial molars, as in the casts shown. (Fig. 9.) In fact Hutchinson speaks of the frequency of their association. It would throw much light upon this point if we were able to examine the teeth of a people where syphilis is prevalent, and where mercury is not used as a remedy. The only thing I have been able to find—which would seem to bear upon this point—is from M. Magitot. He does not think that the notch is characteristic, and says "that it is not found in some races frequently afflicted by syphilis, such as the Japanese and Peruvians.

I am aware that the question of heredity is a deep one, and that I must be prepared to grant that acquired characteristics are not transmitted. The most advanced biologists, however, admit that poisons are transmitted, and I only argue that the poisonous effects of mercury, given to combat syphilis, or for any other cause, as well as the effects of syphilis, may be transmitted.

The body of the parent may be mainied, generation after generation, as by circumcision, without producing the slightest change in the offspring; but when the trouble is constitutional, and the germinal cells derive their nourishment from blood rendered impure—either by poisons dissolved in it, or by microbes floating in it—such mal-nutrition will influence the well-being of the germinal



Fig. 9. Hutchinson notches associated with mercurial molars.

cells. Nor need this influence cease with the expulsion of the poison, or microbes, from the parental blood. Children born of parents who have suffered from syphilis show signs of the action of the microbe upon the germ cell, although the microbe had disappeared long before the birth of the child.

It is admitted that the effects of alcoholic poisoning are transmitted, and high authorities believe that such transmission is by the direct action of the poison upon the germinal cells.

Dr. Thompson in the American System of Dentistry says: "Amongst the mercury-mines of Idria diseases are induced which cannot be distinguished from the venereal, and children born of these people are scrofulous."

I have no wish to undervalue the use of mercury, in certain cases. At the same time, it should be administered to adults with

a full knowledge of its possible ill-effects, while its administration to children, except in most extreme cases, should receive our most emphatic protest.

DISCUSSION.

DR. WM. MITCHELL, London: "I cannot thank the author too much for the concise and interesting manner in which he has presented the subject. The paper is a crystallization of easily comprehensible ideas. The essayist, as I have occasion to know, has bestowed the greatest care and thought upon the subject under circumstances of the most painful personal affliction. We have here, not a theory formed and everything done by way of argument or circumstances brought in to fit the theory; we have no synthetic manipulation of elements to produce a compound substance; no loose laboratory experiments introduced to fit a previously formed theory; but we have *vital force* and *natural processes* playing their parts in connection with the investigations. These factors are often conspicuously ignored, even by noted investigators. Here we have irrefutable and eloquent testimony of the specimens themselves; we see the effect of mercury upon dentition.

Dr. Royce's investigations are in a comparatively incipient stage; they lead to the inquiry: Has the impress of mercurialization upon either parent prior to conception any effect upon the child? Judging from the specimens and the text of the paper, it has not. Yet constitutional taints are transmissible, and as alterations, modifications, and perversions of nutritive processes can be brought about by drugs as well as by surroundings, it is quite within the range of possibilities that this potent and specific action of mercury as commonly prescribed may now receive the serious attention of the medical profession and lead the practitioners to lighten our labors by curtailing its use. I sincerely hope that Dr. Royce may continue his investigations and that they may be taken up by others."

A MEMBER: "It is to be remarked that the subjects in Dr. Royce's experiments have been dosed with mercury continuously while the human patient is under mercurial treatment for a short time only."

DR. ROYCE: "The dogs were subjected to mercurial treatment for two months only, but a great many teeth had erupted during that period. Dogs' teeth erupt very quickly."

DR. HUGENSCHMIDT: "Dr. Royce deserves to be highly congratulated for the experiments which he has undertaken for the purpose of elucidating some of the dark phenomena which underlie the etiology of dental erosion. He presents us today but one conclusive experiment, it is true, but this is the experimental outcome of an hypothesis clearly conceived in his own mind; namely, the action of mercury on the developing enamel organ. Whether the mercury has been taken during the developing stage of the tooth, or the organism influenced by the drug, by heredity, or through the mother before the development of the portion of enamel acted upon, mercury is suggested as the cause of the mischief. I am personally much interested in the facts brought forward. Our colleague ought to be strongly encouraged to pursue his researches and present to us an additional number of conclusive experiments.

I would like to say, however, that I do not believe mercury to be as frequent a cause of erosion as Dr. Royce thinks, although I am convinced that the action of a general alterative remedy, such as mercury, must have some influence on the development of the different tissues and organs, (including the enamel, of course,) when given at an early stage to the child. In the skull presented to us we must remark that the erosion is a particular one. The whole surface of the enamel has been eroded from the tip to the base of the tooth, every tooth being involved to the same degree. This is not the case in the human subject, except in very rare circumstances. It indicates a very great disturbance at the period of tooth development. Mercury must certainly interfere at that period with the harmony which presides over the development of the whole organism, and therefore we must be prepared to find disturbances in other parts of the body. This field belongs to the general practitioner, but if Dr. Royce's future experiments confirm the one he has presented to us today, he will have rendered an immense service to medical science in preventing the abuse of mercury.

For myself, I still cling, in the majority of cases, to the influence of the auto-organic poisons on the developing organisms; to those which are formed in the course of eruptive fevers, of convulsions or hysterical infantile states, infantile diarrhœa, mal-nutrition and other allied states, which, in depressing the organism, render it

less capable of fighting through its phagocytes against external and internal enemies.

As to the influence of mercurial stomatitis on the developing enamel, mercury will produce stomatitis only in a dirty mouth, but never in one in which there is no trace of tartar, where the patient cleanses his mouth after each meal and practices antiseptic mouth-bathing. (I use the word mouth-bathing,—rather than wash,—because I believe the patient must not only take the wash in his mouth for a few seconds, but in order to have any benefit from it, must keep it in his mouth for at least five minutes before throwing it out. Even bichloride 1-1000 requires at least two minutes to sterilize the mouth.) If buccal cleanliness is thoroughly maintained, general mercurial disturbance will appear before there are any of stomatitis."

DR. BRYAN: "It is unfortunate that Dr. Royce lost such important members of his canine family, and it is to be hoped that in future experiments in such a distinctly scientific research, circumstances of environment will not be permitted to modify results. It would seem necessary to be absolutely sure about the parentage of the litter. Such means should be taken as will insure the whole family to be by the same father. The great difference in the size of the crania presented would suggest the possibility of a different parentage. Dr. Royce's plan of using rabbits for his further experiments will probably give more reliable results than with dogs. The disturbance of the development of the enamel, in the case which was treated with calomel is most marked and of great scientific interest."

DR. ROYCE: "It strikes me as a very strange coincidence that in both the cases presented by Dr. Luce and Dr. Monk, as well as that presented by myself, all showing marked defects in the formation of the enamel, the incisor teeth did not meet; and that while these teeth were rather short they were not short enough, to account, of itself, for the defect. It is a question in my mind whether the same cause that interrupted the formation of the enamel has not prevented the development of the incisive portion of the superior maxillary. I have seen the same defect before associated with these teeth, but it has never struck me as being usual."

[TO BE CONTINUED.]

FIFTIETH ANNIVERSARY OF THE DISCOVERY OF ANÆSTHESIA BY HORACE WELLS.

HELD IN PHILADELPHIA, DECEMBER 11, 1894.

Over one hundred visiting dentists, a large contingent of the local profession, and the students from the Dental Department, University of Pennsylvania, Philadelphia Dental College, Pennsylvania College of Dental Surgery and from the Medico-Chirurgical College to the number of eight hundred assembled in Association Hall at 2 p. m.

Dr. J. D. Thomas, Chairman of the Executive Committee, called the meeting to order, and introduced Dr. J. Y. Crawford, of Nashville, Tenn., President of the American Dental Association.

Dr. Crawford said: "Mr. Chairman, Fellows of the Dental Profession, Ladies and Gentlemen: At the meeting of the American Dental Association at Old Point Comfort, Virginia, on the second Tuesday of August last, a resolution to organize this memorial occasion was introduced by Dr. J. D. Thomas. This magnificent assemblage is the culmination of that resolution, and this is the gathering to celebrate the emancipation of the human family from pain by the discovery of Anæsthesia. Fifty years ago today, Horace Wells made the first legitimate exhibition of Anæsthesia, under proper restrictions, in a surgical way, which will entitle him to as much recognition at the hands of a just and liberal profession as was accorded to Jenner, Harvey and Pasteur. The incident of the bruised knee was to Wells what the inadvertent remark of the milkmaid was to Jenner. They were both pivotal contributions to the healing art."

Dr. Thos. Fillebrown, of Boston, was introduced and read an exhaustive paper on "The History of Anæsthesia," of which the following is an abstract: Great discoveries and events do not burst forth with Promethean suddenness, but wait long periods of hope and may be despair. So it was with the discovery of Horace Wells, which robbed pain of its victory and the knife of its horrors. The ancient nations hunted for anæsthesia. Homer mentions the inhalation of hemp for that purpose. Pliny and Apuleius refer to the mandragora wine; the Chinese used hemp in the third century; Theodoric described the *spongia somniferum* in the thirteenth century. Ether was also known at that time. In 1800 Sir Humphrey Davy said nitrous oxide might probably be used to advantage in surgical operations where there was no great effu-

sion of blood. But the suggestion bore no fruit for nearly half a century. Of the two anæsthetic agents, Protoxide of Nitrogen and Sulphuric Ether, the former was discovered by Priestly, described by Davy, and applied by Wells; the latter was discovered in the thirteenth century, named in the eighteenth, and applied in the nineteenth. In 1846, its use was made known by Dr. Wm. T. G. Morton at the Massachusetts General Hospital. The anæsthetic properties of nitrous oxide were long known and applied for the entertainment it afforded, but the chasm separating that from its true utility was unbridged until fifty years ago to-day, the man whose honor we celebrate, by inhaling the gas, and having a tooth extracted without pain, fulfilled Davy's prophecy, and made practical anæsthesia a discovered and demonstrated reality! That event, the birth of Pain's Victor, was the source of our knowledge of anæsthesia, and made the name of Horace Wells echo around the world. In the following winter Dr. Wells made a visit to Boston, and through the kindly offices of his former pupil and partner, Dr. Morton, who afterwards introduced Ether, and was a claimant to the discovery of Anæsthesia, made an exhibition to the Harvard medical class, by permission of Dr. J. C. Warren. The attempt was an apparent failure. The patient was incompletely anæsthetized and cried out, as they frequently do, and Wells was greeted with hisses of derision. The patient afterwards said he experienced no pain. This failure so disheartened Wells, that he shortly abandoned dentistry and committed suicide by severing a jugular vein. With the unparalleled honor of the discovery by Horace Wells, the names of G. Q. Colton, Col. Samuel Cooley, Dr. J. M. Riggs, E. E. Marcy, W. T. G. Morton, Oliver Wendell Holmes, Jackson and Bigelow are indissolubly connected. Marcy suggested ether to Wells instead of nitrous oxide; Morton made the first public application of ether for surgical anæsthesia; Jackson claimed to have suggested ether to Morton, and Oliver Wendell Holmes suggested the name anæsthesia, which is "repeated by the tongues of every civilized nation." Dr. Crawford W. Long, of Athens, Ga., claimed to have given ether three times in 1842-3. It was not printed until 1849. How could he resist flying with joyous wings to proclaim to a waiting world the great boon to humanity? The honor of the discovery is not accorded to Long, on account of its unauthenticity, and its tardy publication. If he used it, nobody knew it, and

nobody used it because Long did. Then came a long list of pretenders, denominated generically "jump-up-behinders." In 1846, Sept. 30, Dr. Wm. T. G. Morton administered sulphuric ether for the first time. He made a public demonstration at the clinic of Dr. John C. Warren, at the Massachusetts General Hospital on Oct. 16, 1846. Morton and Jackson made a joint oath to the discovery of ether as an anæsthetic and applied for a patent; the next year each claimed to be the individual discoverer. The application was discarded and declared not patentable. In 1847, the Paris Academy proclaimed Morton and Jackson the joint discoverers, but after a full hearing, they decided that the honor belonged to Horace Wells, as the first to use gases and vapors to perform surgical operations without pain. In 1847, Sir James Y. Simpson of Edinburgh made experiments which gave Chloroform as an anæsthetic to the world. Whom, then, shall the honor of Anæsthesia's discovery make immortal? To each and all of the glorious names who made their individual contributions. But the noble, generous mind, that conceived the grand idea, and conferred Science's greatest boon on Humanity belonged to the immortal spirit of Horace Wells. The facts maintain the truth of his priority: disputation but weakens the evident conclusion. In honoring his memory, we should regret his sad and tragic end. It is a peculiar fact that his rival claimants both met with violent deaths. Morton died suddenly of apoplexy, while Jackson was insane the last seven years of his life. Thus did the Shears of Fate cut the tent-ropes of their lives. Let us lay the chaplet of honor on his memory. Would we might with it crown his head. The everlasting epitaph of this martyr and hero, will be:

"TO THE DISCOVERER OF ANÆSTHESIA—HORACE WELLS!"

Prof. James E. Garretson of Philadelphia was then introduced. After thanking the audience for their ovation, he said there was in the audience one whose presence afforded him much pleasure—Mr. G. Q. Colton. We are here to honor Wells. Without a Colton, there could be no Wells. We are going to erect a statue to Wells. Let us begin by showing our respect for Mr. G. Q. Colton. Mr. Colton was presented and seated upon the stage, Prof. Garretson delivered an address on "The Benefits of Anæsthesia to Mankind." He said he was overwhelmed at the contrast of the occasion and the speaker. It is not profanation to compare the reverence of a priest, when he uncovers the Host, in the profundity

of holiness, to his own feelings when he speaks of the greatest of God's gifts to humanity, "Silence is Golden." Anæsthesia is the gold of silence. The silence of pitying lies in the presence of torture, shorn of its horrors. The ring of a bell is in its metal; the ring of a man is in his work. Horace Wells! It does not nor will not still. It rings and rings and rings in distinctness, albeit accordant and discordant sounds are everywhere around. He was a vessel capable of holding and was filled. In him the river of Lethe found a channel. Everywhere over the land flows the stream of Nepenthe. The melody of music is not a note; the inspiration of a poet is not grammar. The ghost of anæsthesia was in the camel droppings on the desert, in the fields red with poppy. Ether was named by Frobenius. But who dreamed of the wonderland of Euthenasia, contained in the bottle on the chemist's shelf? Cadmius saw letters. Shakespeare saw the fullness of Expression. Horace Wells saw in the room at Hartford, what had ne'er been seen before—Anæsthesia. Some had seen the filmy halo that meant Anæsthesia, but it was forgotten. Sir Humphrey Davy saw the outskirts of Elysium; but it was only in thought. The seership of Horace Wells was practical. While pain is painful, his name will be upon the lips of men. Apples ripened and fell before Davy guessed their secret; kettles boiled and hissed without telling their story; electricity flashed athwart the firmament long before it was harnessed; the sun's rays made perfect pictures; but there were no takers of these gifts. Alexandria told the story of steam; Pipon invented the cylinder; Fulton launched a steamboat, and Stevenson a train of cars; Daguerre made beautiful counterfeits of nature by the aid of the sun; and Mozart told by note what the flowers were doing. Was anæsthesia as anæsthesia known to surgery before 1844, as it became known in that year and has been since? Not nitrous oxide, or ether, or chloroform; not rapid breathing, but anæsthesia. The man of that year was Horace Wells. Anæsthesia! What would the world do without it! What could it do! What did it do! Think of an operation without it! A mother with tear bedimmed eyes, in despair and misery follows with trembling steps, the nurse who bears her first born to the operating table. The cries of the innocent babe mingle with the agonizing shrieks of its mother, It is held by force; she is torn from its side, and as she hears the heart-rending moan, falls down in a heap and is borne from the room screaming and crazed, curs-

ing God as a being without mercy. Now, a child who has a deformity to be corrected, is cuddled while he crowingly inhales the subtle fumes of chloroform, and dreams of Babyland embowered in roses while the operation is quickly accomplished. The name of the maker of this picture? Horace Wells! Hail to the Poets, Musicians, Seers, whose statues of enduring brass mark our working places! Hail to all the seers! Immortals! Hail to Horace Wells!

The Chairman announced that the consideration of a plan for a permanent memorial to the discovery of Horace Wells would be entertained.

Dr. L. D. Shepard offered some resolutions drafted by the executive committee, in reference to the discovery of Anæsthesia, which were approved with unanimity.

Dr. R. Huey of Philadelphia moved that a committee be appointed by the President of the American Dental association, to secure funds for the erection of a Memorial in Washington City.

Approved. (Committee to be announced.)

The Chairman introduced Mr. G. Q. Colton, of New York, who gave the following Historical Reminiscence:

In the words of Anthony at the funeral of Cæsar, I can say:

"I am no orator, as Brutus is;

But, as you know me all, a plain blunt man,

For I have neither wit, nor words, nor worth,

Action, nor utterance, nor the power of speech

To stir men's blood: I only speak right on;

I tell you that which you yourselves do know."

On the 10th of December, 1844, I gave an exhibition of the amusing effects of nitrous oxide gas in the city of Hartford, Conn. After a brief lecture on the properties and effects of the gas, I invited a dozen or fifteen gentlemen to come upon the stage who would like to inhale it. Among those who came forward was Dr. Horace Wells and a gentleman by the name of Cooley. Among those who inhaled the gas was Mr. Cooley. When under its influence, he began to dance and jump about. He ran against some wooden settees on the stage and bruised his shins badly. When recovering from the effects of the gas, he went to his seat, next to Dr. Wells. Dr. Wells said to him: "You must have hurt yourself." "No," said Cooley, but at the same time he began to feel some pain in his legs. He was astonished to find his legs all bloody—

said he felt no pain till the effects of the gas had passed off. At the close of the exhibition, and while the audience was retiring, Dr. Wells came to me and said: "Why cannot a man have a tooth extracted when under the influence of the gas, and not feel it?" I replied that I did not know, as the thought had never entered my head. Dr. Wells said he believed it could be done; and that if I would bring a bag of the gas to his office the next day, he would try it himself. The next day I took a bag of the gas to his office, and Dr. Wells called in Dr. Riggs, a neighboring dentist, to perform the operation. I administered the gas to Dr. Wells, and Dr. Riggs extracted a decayed molar tooth. On recovering and finding his tooth out, Dr. Wells slapped his hands upon his knee, and exclaimed, very excitedly: "*It is the greatest discovery ever made. I didn't feel it so much as the prick of a pin.*" That was the first tooth ever drawn without pain, and was the birth of anæsthesia. This operation took place just fifty years ago today. The discovery of anæsthesia, and its practical demonstration, belongs entirely to Dr. Wells.

Mr. Charles T. Wells, of Hartford, Conn., the only son of the great discoverer, was presented to the audience.

Dr. Donnally, of Washington, moved that the Committee be instructed to take into consideration the feasibility of establishing a National Memorial Hall in connection with the Wells monument.

A magnificent banquet was held at the Union League, at 6:30 P. M.

Dr. E. T. Darby, of Philadelphia, presided as toast master. Gen. Joseph R. Hawley, U. S. Senator from Connecticut, responded to the toast, "The Horace Wells Discovery—Its National Significance." He asked: How many thousand years were added to human life by the result of the great discovery? How many years of agony were thrown into the bottomless pit of oblivion? He knew the office in which this discovery was made. He knew the gay and frisky Col. Sam Cooley who danced about and barked his shins, and was the innocent cause of the brilliant discovery. He exhibited the book of Wells. Truman Smith, the venerable lawyer of Connecticut, and scores of Hartford's great men testified to the validity of Wells' claim. He had been present the day before at the anniversary celebration in Hartford. It took those eighty-year-old enthusiasts until midnight to erect the bronze tablet. He felt honored at being present at both celebrations.

Prof. James Truman, of the University of Pennsylvania, responded to the toast: "Anæsthesia as a Dental Discovery." Prof. Truman was reminded of the story of the Ugly Duckling that came out late, was picked at, and loved by no one. But it was able to swim and fly, and was adopted by a tribe of wild ducks, and afterward became a beautiful swan. Dentistry came in late—the last half century; but today her representatives have assembled here from fourteen states, in a high professional spirit to do honor to one of her greatest men. Horace Wells lived in the period of transition in Dentistry, when every man's hand was against his neighbor in professional matters. He was broader. He reached out after the great world that Goethe loved. He went to the center of medical education—Boston—and was hooted out of the medical profession in disgrace. But every age has stoned her prophets, as every age will continue to do. Dr. B. W. Richardson, of London, in the last few weeks, in Longman's Magazine, has tried to tear the laurel from Horace Wells and place it on Sir Humphrey Davy. The parable of the sower is applicable. Priestly was the stony ground; Sir Humphrey Davy was the poor soil—he was a dreamer. The receptive brain of Horace Wells was the good soil that bore fruit in the amelioration of pain. When for the first time modern anæsthesia was exhibited, amid the anxiety of the surgeon, the excitement of the students, when for the first time they beheld a patient passive under the surgeon's knife, did anybody think of Sir Humphrey Davy? When we look back over the great battles, the terrors of hospitals and the accidents of life, who can aggregate the benefits of Anæsthesia? It was in the humble home of the Hartford dentist that the still small voice whispered in the wilderness of suffering. And that whisper will echo and re-echo until the cry of agony shall be silenced forever. O Dentistry! though not the first born of this our nineteenth century, in our heart of hearts we enshrine thee. Thou hast given anæsthesia to the world.

Prof. J. William White, of the University of Pennsylvania, responded to the toast, "Anæsthesia as a Factor in the Evolution of Surgery." The discovery of anæsthesia is a priceless gift to surgery. Like an enchanted Genii of the Arabian nights it transports one from conscious suffering to the dreamy slumber of oblivion. If it had contributed nothing more to the victories of surgery than the transformation of a screaming sufferer into a plastic, unconscious patient for the surgeon's knife, it had added incalculably to

its efficiency. But that is the least of its blessings. It brought possibilities of an incredulous advance. Hundreds of operations undreamt of in 1844 have saved the lives of countless thousands. The processes of disease and trauma in regions uninvaded in pre-anæsthetic days, were helpless and hopeless before the inspiration of Wells fifty years ago. The advance of this period has outstripped that of eight hundred years. In it, aseptic and antiseptic surgery has developed, and almost wiped out certain forms of suffering, disease and death. Surgery has not reached its culmination. Investigation, research and experiment are advancing rapidly. The prizes are still great; Tubercle and Cancer remain to be conquered, and though we may not live to see it, it will ultimately be accomplished. The age is full of glorious men vigorously anticipating the splendid hopes of the future. All glory to Horace Wells, the builder of the foundation and the layer of the corner stone,

Prof. Horatio C. Wood, of the University of Pennsylvania, responded to the toast, "The Debt of Medicine to Anæsthesia." Once there were two twins. One was lusty and eager, always shouting its own praises; at the fore front of battle, revelling in blood, accident and death. The other was modest and retiring, thinking much but speaking little. And one was Surgery, and the other Medicine. To the twin Surgery Anæsthesia came as a great gift. To Medicine, it didn't at first appear to be such a great boon. But there are now many diseases that attack the mortal frame, that could not be relieved without the great gift from Hartford. Were it not for anæsthesia, few would have the courage for vivisection; and were it not for vivisection, there were no modern medicine. Anæsthesia has made modern physiology, antiseptic surgery and advanced medicine the great, wonderful structure that we stand off and contemplate with such reverential awe. That is what anæsthesia has done. Not simply to quell pain momentarily, but made possible modern medicine. He hoped the dental profession would erect a monument to one of their guild who was such a benefactor to mankind. He did not know of a single statue erected to a medical man in the United States. When Leidy died, the greatest man Philadelphia ever produced, the one man who was ever crowned by the immortal leaf of the French Academy, the newspapers only had five or six lines about him.

Col. Alexander McClure, editor of *The Times*, Philadelphia,

responded to the toast, "The Mastery of Pain from the Standpoint of the Layman." Col. McClure remembers the transition of dentistry from a critical condition to its present position of wonderful achievement. He remembers when the blacksmith of the village pulled teeth with a gimlet having a screw in its end, and the itinerant dentist "stood" one day at one place and the next at another. He recollected the introduction of anæsthesia forty-five years ago. He was then publishing a country newspaper—the only time in his life when he thoroughly understood the newspaper business. He and his apprentice instituted a series of experiments. The apprentice proposed to have a young physician give him chloroform; the Colonel was quite willing that it should be administered to the young man. It was administered with great success. Every case of type being upset, hence he claimed some credit for its advance. About thirty years ago he was suffering from an aching wisdom tooth. He had read of the gas. He came to Dr. Thomas, saw the list of some eighteen hundred persons who had taken it successfully; but he saw no instruments. He took a deep inhalation—then another—then . . . ! Suddenly he woke up, and asked if the tooth had been pulled. He was assured by seeing the offending member. Since then, when he has a tooth to be extracted, he walks quietly to the dentists' office, takes a whiff of gas, and all is over.

Prof. Wilbur F. Litch, of the Pennsylvania College of Dental Surgery, responded to the toast, "The Development of Our Knowledge of Anæsthesia." He said the discoverer of Anæsthesia had done more to promote the happiness of mankind than all the philosophers from Sophocles to Mill. In 1832, Velpeau declared painless operation in surgery a chimera; but, later, he did an amputation under ether. The ancients sought for some analgesic in mandragora, hyoscyamus, opium, and hemp. The stupefying effects of alcohol were more safe and effective. The marvel is why alcohol to its full intoxicating effect was not systematically employed. "Years teach much which days never know." (Emerson). Ether was known five hundred years; nitrous oxide seventy years before Wells' time. Anæsthesia is a flower that has blossomed slowly on the cross of suffering. It is recorded that the Romans offered a lethal draft to him who bore the typification of human suffering. Humanity to-day drinks of subtler influences. He referred to the report of the Hyderabad commission on chlo-

roform, and mentioned the use of cocaine in the production of local anæsthesia. The ideal anæsthetic, one that was perfectly free from danger, remained to be discovered. At present, nitrous oxide with oxygen is the best, but for the mechanical difficulties.

District Attorney Geo. S. Graham, of Philadelphia, responded to the toast, "The Medico-legal Aspect of Anæsthesia." The toast reminded him of Daniel O'Connell calling a man a nefarious ruffian because the phrase was high-sounding. The story of a man knocking a hole in the cellar wall to let the dark out was applicable to it. Anæsthesia in its broad sense, including alcohol, made many subjects for the legal surgeon's knife. When Dr. Thomas gave him gas for the extraction of a tooth, he heard a seraphic symphony from the Heavenly spheres, but when he awoke, he found the music came from a music-box, and was administered with malice aforethought. That was the first connection of anæsthesia with the law. He said law was not in sympathy with vivisection—he once lost a dog himself. The highest tribute from a sister profession is the reiteration of the praise bestowed by one's own profession. If a man lives in their memory, and is honored as the discoverer of a great good to suffering humanity, that is the loftiest pedestal on the footstool of God. Esteem and honor to pioneers, in discovery and advancement. The whole world joins in sweet acclaim of praise to the memory of Horace Wells!

Rev. S. D. McConnell, of Philadelphia, responded to the toast, "The Humanitarian Aspect of Anæsthesia." Most persons have learned the ability to escape from the text; but he would rather be the discoverer of anæsthesia than to be any man that ever lived. When all the achievements of this century shall be forgotten, this one great controlling event that happened once in the history of humanity will remain. The old books on theology discussed at interminable length the meaning and use of pain, claiming that it was eternal, insoluble, the result of evil, and the punishment therefor. The measure of sensibility to pain is the measure of civilization. Low civilization is comparatively indifferent to pain. This is an age of physical anæsthesia; of moral and mental anæsthetics. All the philosophizing about pain cannot make us bear with equanimity some other fellow's pain. Pain is demoralizing, and its relief is elevating. It begets gentling of manners and thought, tenderness and compassion. The man who has done this, has taken out part of the unspeakable anguish of parturition, has saved

innumerable lives, has enabled timid souls to look serenely upon suffering, and walk triumphantly to the end.

Mr. G. Q. Colton related some amusing experiences in connection with the administration of nitrous oxide and tooth extraction, and concluded with the masterly advice of Polonius to his son Laertes.

Mr. Charles T. Wells, the only son of the immortal dentist, gave some personal recollections of his father.

At a late hour the company dispersed, having honored the memory of the discoverer of anæsthesia in a fitting and suitable manner.

DR. W. J. YOUNGER ON PYORRHOEA.

Perhaps it would be well for me to summarize the arguments for and against the theory of pyorrhoea alveolaris being due to constitutional diathesis. The arguments infavor of pyorrhoea alveolaris being of constitutional origin are what?

1. That it is found in persons afflicted with gouty diathesis.
2. That traces of uric salts are found in the calculi of some of the people afflicted with the gouty diathesis.
3. That the condition of irritation in the gums and around the roots, and the discharge of pus, are modified by constitutional treatment.

In opposition to this we find:

1. That pyorrhoea is found in persons having no constitutional cachexia or diathesis.
2. That if it were of constitutional origin it would be found in all, or at least in nearly all, cases having the gouty disposition.
3. That the amelioration of the irritation by constitutional treatment is what would occur in any local irritation when the system would be placed in a healthy condition.
4. That if it were of gouty diathesis the deposits from the saliva would also be impregnated with these urates.
5. That, if it were of constitutional origin, constitutional treatment would be necessary for its cure; but, instead, local treatment is found sufficient for its complete eradication, notwithstanding the constitutional ailment is continued in undiminished force.
6. In all cases of pyorrhoea alveolaris we find a connection between the calculus and the cavity of the mouth, which would not necessarily be so if it were the result of a constitutional pathologic state.

Besides these points, Dr. Van Woert asserts that the disease is communicable by infected instruments which, if true, would prove a strong argument against the theory of constitutional development.—*Journal Am. Med. Assn.*

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

SALUTATORY.

THE DENTAL DIGEST is the child of necessity. At the present time, in the United States, no journal fills the niche which this periodical will try to occupy. The publishers do not, and the editor cannot promise that everything new will first find its way to the public through its columns. An effort will be made to render the reading pages interesting and profitable to the subscriber. No legitimate means will be spared to present from month to month a DIGEST of important discoveries and inventions of the whole world, but it is not our intention to digest *bizarre* and useless matter. Legitimate topics in education, legislation and theory and practice of dental surgery, with reviews of books, brochures and news of the most varied and select character, will be treated in the most impartial manner in these pages.

Heretofore the body of dentists practicing in the United States have had no mouthpiece, today our columns are open to all for the discussion of any vital question in ethics, patents, literature, science, practice or on cognate subjects. It will be the aim of those responsible for its monthly issue to offend none, but this does not mean that all subjects will not be treated in a fair and candid spirit. We reserve the right to fight shams and deceptions whenever found, to point out fallacies and to speak a word of warning to those who are regardless of the proprieties of professional life and its objects.

THE DENTAL DIGEST only asks a fair trial to demonstrate its right to live and thrive with other engines of liberality and progress.

THE MISSISSIPPI VALLEY ASSOCIATION OF DENTAL SURGEONS.

ABOUT fifty years ago in Cincinnati, Ohio, was organized the oldest dental society in the world; that is, it was not the first organized, but it has been continually in existence from that date to the present time. What society in dental history can boast such a past? Among the living there are few who were present at the first meeting, but of the departed we remember the names of James Taylor, Geo. Watt, W. H. Atkinson, W. H. Shadoan, H. E. Peebles, W. W. Allport, Wm. Albaugh, F. H. Rehwinkel, W. H. Goddard, W. H. Eames, A. M. Moore, G. A. Wells, J. A. Kennicott, Geo. W. Keely, B. D. Wheeler, C. R. Taft, A. Berry, J. Richardson, S. J. Cobb, M. S. Dean, A. O. Rawls, J. Hardman, J. P. Ulrey and a host of others who contributed to make the society famous in its earlier years. The most conspicuous living, lifelong members are J. Taft, H. J. McKellops, W. H. Morgan, Geo. J. Friedrichs, Geo. H. Cushing, C. R. Butler, W. P. Horton, J. G. Templeton, Francis Peabody, W. N. Morrison, H. A. Smith and P. G. C. Hunt. The lists are far from complete, as to name the whole number would take too much of our space. We understand that it is the purpose of the present officers to celebrate the semi-centennial in March next and we wish to contribute our mite toward making it a success. If a definite program is not already mapped out we suggest that a condensed history of the society be presented by one fitted to do it in the best possible manner. So far as is known but one man can do the subject justice, and he is Dr. E. G. Betty, of Cincinnati. The labors of the historian are not fully recompensed during life in many cases, but a grateful posterity will erect a monument to the makers of important discoveries, and the milestones of progress will be scattered along the pathway of those who assist in rendering the past an easy lesson to read.

ECONOMY OF TIME.

If there is one thing more than another that the dental profession need to practice it is economy. At this time we will only speak on economizing time in regard to reading matter.

Almost everything that is written is but a repetition of other men's thoughts handed down in different shapes from time to time. There is but very little real original thought. If these propositions are true, a writer in order to gain appreciative attention must place his productions before the average reader so that the valuable thoughts are not too far apart, or in such language that the thought is not lost while the entire article is being read. We think this is especially true of dental literature. A busy dentist does not have time to wade through reading matter which occupies a great number of pages, the thought of which should be put into one-third of the space.

It is hoped in this new enterprise of ours we shall be able to get together and condense the thoughts of many periodicals so that the important matter in the great number of dental journals can be placed before our readers in a way that they can get it with much less labor than to read each article in full, and avoid such as have no thought, or not enough thought to waste time upon. The need of such an organ has been urged for twenty years; but we think there never was a time when it would be as much appreciated as now, as the organs of communication have been so multiplied by various interests, that even the most intelligent practitioners have become discouraged rather than encouraged in reading what would be a benefit if placed before them in a condensed form. We have herein suggested one reason why the dental profession read so little of dental literature.

We believe a department of our journal which contains the valued thought condensed in just space sufficient to make it intelligible will be valuable, as it will enable the busy man to get the benefits without wasting the time and thought necessary to get the information desired in the form such articles and discussions are now published. This may deprive many articles of what the author considers necessary in the way of syntax or oratory, but will be a great economy of time and give to our readers what they otherwise could not get on account of the effort necessary to read so much chaff for so little grain.

It can hardly be expected, however, that this feature of the journal can be so fully carried out in our first number as it will be in subsequent issues. Our space is limited, and the insertion of introductory matter and original communications is absolutely necessary to make our first number complete.

DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES.

As the DIGEST goes to press we are entering upon the eighth year of work in this association—work which has been attended with difficulties, anxieties, interest, excitement and, we trust, profit to the members and the profession at large.

Never was an association begun with less to encourage, never one beset with greater obstacles in its progress, never one more successful in accomplishing its purposes! It has so far in its history won every suit which has been brought against any of its members. And these suits have been brought in all parts of the country. It has one suit now pending with the International Tooth Crown Company, viz: the Low Bridge Patent. Much time and effort have been spent in preparation of defense for this (we trust the closing) suit.

Several times during the year it has been necessary to visit the Eastern cities and once to cross the Continent from New York to California to take testimony for this case. The evidence is at last substantially in, and the case would have been argued before this, but that complainants up to the present time have failed to establish any good title in the International Tooth Crown Company to the Low Bridge patent; hence time has had to be granted them to sustain this title. If they are able to do this, the case will be argued in the near future. In case the Dental Protective Association is successful in this suit, and we have every reason to expect such a result, it might seem as if its work were ended; but this is *far* from being the case. The association is now defending two other patent suits brought against its members by other patent companies, and in addition to these still other suits are threatened. It should also be borne in mind that the object of the Dental Protective Association is not solely to defend patent suits, but to *band the profession together* and place it in a position where it can successfully resist extortion or injustice in any form.

Lest some should be confused as to the relation of the Dental Protective Association, the Dental Protective Supply Company (of the United States) and the DENTAL DIGEST, we offer a word of explanation. The Dental Protective Association and the Dental Protective Supply Company are distinct organizations and exist as separate corporations. The Dental Protective Association was first made necessary to relieve the profession of the abuses of

patent claimants, who by various processes and ways that were dark have kept the profession under their control for the last forty years. Their claims for royalty on various methods of practice amounted to little less than blackmail, and yet the individual practitioner has been powerless to resist them. But these claims were only a part of many wrongs and much injustice which have been imposed upon the dental profession, hence it became evident as the work of freeing ourselves from long endured thralldom progressed, that a second organization was quite as necessary as the first, and the Dental Protective Supply Company came into existence to meet our farther needs. This in turn increased the necessity of a means of communication with the members of the dental profession, so the DENTAL DIGEST greets you and we trust will soon become a valued friend in every dental office. We shall fully appreciate this improved method of communication after the laborious process of reaching the constituency of the association for seven long years through postals and circulars. All the dental journals are controlled by supply houses, or are dependent upon the support received from their advertisements, so that it has not been easy to reach in this way even those who take dental periodicals. The reason for opposition from dental dealers will be made clear later through the DENTAL DIGEST, which will be the organ of the Dental Protective Association; but will be published, controlled and managed entirely, including its finances, by its younger brother, the Dental Protective Supply Company. For further information as to the plans of the Dental Protective Supply Company we would refer you to another page of this journal. The DENTAL DIGEST will be the medium for any communications we may wish to send to the members or to the profession at large. Its columns will also be open for questions and answers concerning the work of both organizations.

In the rush of issuing the first number of our journal, we have not had time to give anything like a resume of the work of the Protective Association; but intend as soon as possible to give a complete but condensed history of what it has accomplished.

With increased facilities for becoming acquainted with the progress being constantly made in all our lines of work, we feel sure the bond of interest and sympathy will grow in the profession, and that increased co-operation in the building up of both of these organizations and of the journal itself will be the result.

HORACE WELLS MEMORIAL CELEBRATION.

The celebration held in Philadelphia December 11, was numerically well attended considering the time of the year. About one hundred dentists were gathered in the Quaker City to do honor to the memory of the discoverer of anæsthesia, Horace Wells. The large auditorium of Association Hall was well filled by the attendance of local members of the profession and the dental students from the three dental schools. The papers were both interesting and instructive. The banquet in the evening, given in the Union League Club, was attended by about one hundred and fifty. The speeches were numerous and most of them were good, especially the ones by Drs. James Truman and W. F. Litch on the part of the dentists. The speeches of Col. McClure and Mr. Graham, of Philadelphia, and that of the Rev. McConnell, were quite taking by their spice and the energy of their delivery. Senator Hawley, of Connecticut, and the son of Horace Wells, both spoke in a reminiscent manner of the great discovery. The remarks of Profs. J. W. White and H. C. Wood were brief and pointed, especially those of Prof. Wood. Everything passed off in the most decorous and solemn manner befitting the nature of such an event. It was made evident during the day and evening that the credit of the discovery of anæsthesia belongs to Dr. Wells, and no other claimant, so far, can antedate his public proclamation of this great boon to medicine.

LETTERS.

To the Editor of The Dental Digest:

DEAR SIR: For your first number of the DIGEST you wrote me for an article from "your well known pen" among many others you had thus complimented.

You did not inform me of the title of your journal or its mission, or give me any hint of what you wished from my pen. Having since learned, however, it is in the sole interest of the Dental Protective Association and dentists generally, I have presumed to write on the prospects of such an enterprise.

As to the need there can be no doubt. How to meet the issues that have foiled other such efforts, your experience in journalism will very naturally aid you in the problem.

If you can impersonally edit, then, the results will be greater and more lasting. If you can recognize that the dental profession, of all grades, should be made a unit and to act in harmony with the Protective Association and uphold you in your department, you will have scored many points.

If you will publish original matter whether it comes from a member of a society or from an individual who does not belong to any organization, you will do much to inspire and stimulate many good men who do not care to run with cliques, be in rings or in politics.

If you will stoop to extract the essence (digest, if you please) from any and all publications, whether dental, medical or secular, bearing at all upon our art, then you will have a *multum in parvo* journal that will fill a field not hitherto attained.

If you are to do what is enscribed on your title page your task will be one needing the highest qualities of brain and heart to do justice to every original article, or when you quote or extract.

Your future will be taxed to the uttermost to bring assimilated material out of badly masticated food, for mental pabulum that will give nutrition for better organized work and impart higher functional activity.

For one man to grasp the varied work and thought of dental art and science in its ramifications up to the present hour, is too much to expect.

Associates of the highest talents and qualification who are known for their manipulative ability, who can demonstrate by pen and instrument their specialties, should stand by him and help in general consultation as well as judges of "courts of arbitration"

You should forget that you ever had any professional feeling against any member of your profession, and never refuse to acknowledge genuine worth in an enemy, or one who is in many respects beneath you.

Universal love for *all of us* should be your direct aim, and truth ever be your motto, which alone will bring a lasting victory.

The work of the Protective Association has scarcely begun. It has a distinctive field of operation, and, with a journal now as a mouthpiece, it should move to the front and make the "powers that be" feel that the mass of the profession have at last risen to their dignity, and will no longer "bow the knee to Baal."

We have the ability, the genius, the power, and wielded by a stable organization can "carry the elections" to root out the rottenness that has so long bound us as menials to their greed. When we have done this then we can hope to be called freemen and worthy of higher honors, that await only the strong, the honest, the bold seekers for the rights and standards of a profession that should, even now, be on the same plane and have equal footing with any other profession in the world.

Personally, you must feel that the profession cannot rise through therapeutics alone. Manipulative skill, which is so largely demanded in our work, has a still higher duty yet than in filling teeth and artificial work. Let us look to that higher principle—anticipation of the ravages of caries, and still higher to that hygiene which shall rob caries of the possibility of any inroads and enable the human race to remain free from the blemish and rot that is now entailed upon them. The realization of this dream is our greatest work, and until that is reached and we can *prevent* the necessity of our handicraft, we will remain tinkers and patchers of God's most useful and beautiful of all architectural work. We have gone so far into the restorative art that it is "high noon" and we must be "called off from such labors to refreshment" where we can calmly discuss this greatest problem of our noble art and show the world that we can go further than the medical fraternity, and demonstrate we have well nigh reached the art that "Time's tyrannic claims cannot quench it"—*preservation by anticipation*.

Let us do as I said in "New Era," fear not starvation when we have to give up filling, bridges and crowns, but have the courage to charge our patients (as I often do) for thoughts, knowing they have been crystallized from forty years incubation and experience, and should demand compensation as much as if manipulative skill had been given. If we can save the human teeth without our present methods we are entitled to the highest pay in love and money.

While we all should be ingenious and inventive and able to apply it to our art, to fill any breach made by Time's relentless tooth, let us not overdo this, but give our time and talents to the higher art, of not only vanquishing a foe, but rendering it impossible for such an enemy to ever invade the domain of that grandest of all God's architecture—the human teeth.

Now, dear Doctor, while I congratulate the association in hav-

ing you at the helm of this department, I do not envy you the position, but can only intimate that if I can be of service to you in any of my lines of thought and work from a long and varied experience, I am at your command. Wishing you every success, I am, a co-laborer,

W. G. A. BONWILL.

Dec. 1, 1894.

Philadelphia.

Bibliographical and Selections.

DIGESTS.

The leading article in the *Dental Cosmos* for November, is one by Dr. M. H. Cryer, Philadelphia. Subject, "Technique of Nerve Resections for the Relief of Pain about the Face and Jaws."

This paper was read before the Academy of Stomatology at its first meeting, and was the first paper.

The author, after complimenting the society upon its name—Academy of Stomatology—and the advancement of the Dental profession, which enabled it to deal with other than the diseases of the teeth, proceeded to describe the various plans of operating upon the main nerves of the superior and inferior maxillary, giving plans of operating by different surgeons. He also described an instrument of his own design for obviating some of the different operations, which he called a neurotome. He also referred to an operation which he originated for deepening the sigmoid notch, a description of which operation was published in the transactions of the American Dental Association for 1892.

The most prominent feature of the article was a description of a new surgical engine and handpiece, both of which were very fully illustrated in the published article. We do not consider it profitable to our readers to reproduce much of the article in detail, as these operations, as at present performed, require extensive cutting of the soft tissues as well as a removal of considerable of the bony structure, and are usually unsuccessful, as the author says, "These operations generally give relief for a brief period, but usually there is a recurrence of the pain. After resection, nature endeavors to replace the lost tissues by similar new growths,

which take their place, and frequently the bony tissue of replacement encroaches within the canal to a greater or less extent. These new nerve-fibers are liable to become entangled in the new bone-formation; the pinching or pressure resulting from this may cause a recurrence of the neuralgia."

Before reading his paper, Dr. Cryer presented a patient for examination, upon whom an operation had been performed for the removal of a giant cell osteosarcoma, to accomplish which required the removal of the soft tissue involving the external walls of the antrum, the alveolar border, and including the maxillary tuberosity. This necessarily involved the loss of all the teeth in the upper jaw as far forward as, and including the cuspid. After the diseased portions were thoroughly removed, the surfaces were scraped out clean with the engine bur. At the time of the examination there was a small opening in the roof of the mouth, but the line of external incisions were all obliterated.

Dr. Cryer also demonstrated the method generally used, which has been in practice very many years, of performing an operation for the removal of one-half of the superior maxilla, and explained very fully the advantages of a surgical engine for the performance of an operation of this character. In the after-discussion there is no report of any opinion being expressed by those present.

We shall watch with interest this new society, and shall give our readers a digest of their proceedings. If we have a correct history this society is based on the theory that dentists have outgrown their name and should have one which includes a wider scope than the word dentistry implies.

Societies of stomatology have already preceded this in France and Spain, there being also a journal bearing the above name.

"A Plea for Bridge Work," by Dr. Henry M. Hills, Bordeaux. This article deals with fundamental principles that should be understood to be successful in this kind of work. After a careful reading of it we can gather but little that will be of any value to our readers. After accurate fitting of the attachments to the anchors, the factors named are Force, Strength, and Resistance. That when inserting a bridge the amount of force that is likely to be brought to bear must determine the strength needed for the bridge and what the abutments will resist. That a bridge will resist direct force, that would be destroyed by indirect force, caused generally by imperfect articulation. When the jaws move for-

ward, or sidewise against the bridge as a lever (we should say that the most disastrous condition and the one which destroys the abutments quickest is a sliding force, which we will call an inclined plane). The writer says: "After a thorough investigation of bridge work, I have no reserve in concluding that there is no form of replacement which can approach in appearance, comfort, and utility that of a well conceived, proportioned and constructed bridge, and I may also add with propriety, to a finished bridge, that of cleanliness." The writer concludes his article by describing methods of practice, which are not adopted in this country, viz.: that of inserting plates with artificial teeth over roots diseased and unhealthy. He then gives a case out of his own practice where a bridge is substituted for a plate. The bridge was made in two parts. From the central incisor to the second bicuspid on one side, upper; from the central incisor to the third molar on the other side. The teeth were mounted on slides according to Dr. Evans' system of crown and bridge work. It is needless for us to add here that this case, which is fully illustrated with the published article, was an unusually favorable one for a bridge, for the reason that the bridge on one side had three anchors and the other side four, making seven anchors. It needs no argument to prove to anyone who has had experience in bridge work that a bridge made in such a case as this has no equal in form of plate for utility and comfort to the wearer. It is the cases where we have to contend with long spans or distances from one point of anchorage to another, also the many cases where the subject is a man who has lost some of his teeth from pyorrhea alvolaris and will not allow a plate to be inserted, but insists on the operator supplying the loss by some form of bridge, and he generally insists, if possible, that the bridge shall not be removable and says, "Let it last as long as it will," that puzzles the most skillful bridge-builder, and we predict that the system that will take the place of the present ones is not yet fully developed, but will be of a nature that can be removed at will of the wearer. We hope to give our readers something on this subject later.

A paper by Dr. S. B. Palmer on "Etiology of Dental Caries," read before the American Dental Association, is chiefly a restatement of the writer's well-known views regarding the electrochemical theory, all of which is summed up in the following

closing sentence: "I believe that etiology of dental caries is the effect of a universal principle based upon the potential relations of matter, oxygen being the principal element, aided by electrolysis and capillary attractions under direction of electrical energy."

The paper, however, introduces the subject of root filling, in which he condemns gutta percha for that purpose, on the ground that it "becomes changed in the root canal, and becomes odorous."

The paper elicited but little discussion, and that seemed to indicate that but few converts to Dr. Palmer's views were present.

Dr. Harlan seemed to think that he had pricked the bubble which Dr. Palmer had so earnestly presented, in the following remarks:

"Just what relation the filling of the roots of teeth has to etiology and physiology, I don't understand; but as it has been introduced, I would ask Dr. Palmer how an essential oil could become oxidized in the root of a tooth? Also, how gutta percha could become oxidized in the root of a tooth? and to ask the further question, if gutta percha is an oxidizable substance, why is it that the man who laid the first Atlantic cable, and those who have since followed, used an oxidizable substance for covering that cable in the water? I wish to say that from the theoretical standpoint, from the practical standpoint and from the scientific standpoint, the best material we have today for the filling of roots of teeth is gutta percha. It is one of the unalterable substances that dentists use, that can safely be placed in the root of a tooth without danger of disorganization.

"With reference to the main subject of the electro-chemical theory of decay, at the present time, with the published results of the experiments of Miller and Black, the electro-chemical theory of caries has no ground to rest upon. It seems absolutely determined by these experiments that decay of teeth is essentially the result of the agency of micro-organisms, through their excretory products. The electro-chemical theory of the production of decay is not proven, and the experiments of Miller must stand until something better and more definite is presented which can be substantiated, and experiments of which can be demonstrated before scientific bodies.

"With regard to secondary decay, I wish to say that the causes that produce decay in the first instance are those which produce

it in the second, and that the electro-chemical theory has nothing whatever to do with it."

The sentiment of the members present seemed to agree with Dr. Harlan's position.

Dr. Brophy read a paper describing a new operation for the exsection of the inferior dental nerve.

The operation consisted in cutting down, with a bur, from the mental foramen to a line with the general course of the dental canal, and then removing the nerve by means of flexible drills made after the form of the Gates drills, first using a small one and gradually increasing the size until the canal was so enlarged throughout its entire length as to remove not only the nerve but the lining membrane of the canal. He claimed if this were done, the canal would fill with bony tissue and no recurrence of pain could occur.

The discussion upon Dr. Jackson's paper simply brought out his views as to the best material for making regulating appliances and crib springs. The latter, he says, should always be made of German silver. If piano-wire is used with German silver, the former will corrode, and should be tinned.

The best spring for regulating purposes he considers to be piano-wire, which should be tinned if it is to remain in use for any length of time.

In answer to a question of Dr. Crawford as to the propriety of removing teeth which have been regulated after they had been gotten into position, cleansing them of calcareous deposits, and then replanting them, he replied that "a tooth which had once had a calcareous deposit was never fit to be re-implanted. Scraping the root roughens it and so supplies the first element for inflammation."

Dr. Kulp described a method which he employs for staying teeth in the lower jaw which have become loosened. He makes bands over the entire teeth of platinum, fitted as for full-cap crowns, the labial side being cut out as near as convenient to the gum. Bands are soldered together on the lingual side clear to the cutting edges of the teeth, so that the entire lingual surface is covered with gold or platinum. The piece is then put on with cement, just like a bridge.

In the discussion of Dr. Palmer's paper, Dr. Frank Abbott made some statements regarding root filling which were at least

somewhat startling. He said "he had abandoned the attempt to dry the canals."

His present method is to use aqueous solutions of bichloride 1 to 10,000, which is forced into the canal with a syringe, after the contents are sterilized and removed as far as possible, with instruments. When this is completed a little bit of cotton is carried to the end of the canal and packed tightly, without drying, and the filling material, oxychloride of zinc, is immediately inserted, the idea being to allow the antiseptic remaining to mix with the filling material and thus continue permanently in the canal. In a paper, to which he referred, he had said that he did not fill while there was any periosteal inflammation. He is now practicing the method of immediate root filling, which he finds better than the other.

The proceedings of the New Jersey State Dental Society present nothing especially new or of extraordinary interest, unless it be the paper of Dr. Maxfield, entitled "Methods of Destroying Dental Pulp," in which he says: "My method in detail is as follows: If possible I apply the dam, as it is necessary to keep the cavity dry until the pulp has been injected. After drying out the cavity I uncover the pulp, and this is done in an almost painless manner by first blowing on warm air, then an application of a saturated solution of cocain in alcohol and ether or chloroform, equal parts, allowing this to remain about thirty seconds, then another application of warm air, continuing in this way till sensitiveness is wholly obtunded. As soon as the pulp is exposed,—and I only desire to expose a spot as large as the point of my hypodermic needle,—I apply crystals of cocain and moisten with campho-phenique. After standing thirty seconds I apply warm air for a few seconds, and then attempt to work the crystals into the pulp. In from two to ten minutes I am able to introduce the needle of the syringe without pain. With a quick push I force the piston down and at the same time force the needle into the pulp, and it is instantly benumbed.

"I immediately with burs proceed to open up the pulp-chamber and remove the body of the pulp. As I reach the canals I occasionally find a little sensitiveness, when I have to inject each canal. I then remove the dam and proceed, with one exception, as I always do in treating a pulpless tooth. First, I have the patient rinse the mouth with a solution of hydronaphthol; dry out the cavity and flood it with hydrogen peroxid, and with a Gates-

Glidden drill ream out the canals, at the same time the drills remove the pulp-tissue, and working the drill in such a manner that the peroxid is always in advance of the instrument. When the canals are thoroughly cleansed I wipe them out, and—this is the exception noted above—I pump into each canal a saturated solution of zinc chlorid or carbolic acid, preferring the former. I do this to destroy and render harmless the minute remnant of pulp which it is impossible to remove from the constricted portion at the end of each root. If this precaution is not taken there will be more or less pain after the root is filled. As soon as the influence of the cocain has passed, sensitiveness returns to the remnant end, and if the canal is filled as thoroughly as it should be, there will be pressure at the end of the canal, causing this pain, which will not subside till the filling is removed. I allow the zinc solution to remain in the canals while I am preparing the gutta percha points; then I again wipe out the canals and pump in a saturated solution of iodoform in eucalyptol, and immediately press in the gutta percha points to the end of each canal, and proceed to fill the cavity.

“When patients come in complaining of toothache, and the pulp is still alive, if I am able to give ten to fifteen minutes, I proceed at once to remove the pulp and fill the canals. If there is tenderness on pressure of the tooth, showing that inflammation has extended to the pericementum, I give the patient, as I dismiss him, a few capsicum plasters to apply to the gum over the tooth. When I cannot give any time to the patient, I wash out the cavity with warm water, moisten a pellet of cotton in creosote and oil of cloves,—equal parts,—sprinkle on a few crystals of cocain and seal in the cavity. This generally gives instant relief, and I endeavor to attend to the case within the next two days.

“The question will be asked, Is this method of removing pulps a painless one? I answer, yes and no. In the majority of cases it is painless, but with some there is a little pain.”

It will doubtless strike the majority of readers that the puncturing of a living pulp with a hypodermic needle would be decidedly painful, but as Dr. Maxfield speaks from experience, it certainly would seem desirable to test a practice which would enable us to remove the pulp at the first sitting, instead of pursuing the tedious methods which we sometimes are forced to do.

Dr. Henry Burchard, of Philadelphia, read a paper, subject:—Science and Pseudo-Science.

The editor gives what he calls an abstract of this paper, which occupies nearly five pages, so we shall not attempt to give our readers even an abstract of that. The article is made up of small scraps of philosophy(?). We will give a sample of the most intelligible of these scraps: "As a part of the scientific body, we do suffer, and have suffered; and if we are to gauge our expectations by a not inconsiderable part of dental history of the present, we have much to endure yet before a Stomatological Utopia is to exist." Another is as follows:—"With many or most of the inquirers, searchers of the past eras, the accidental discoveries of certain constant associations between groups of phenomena have been but dry details, which are to serve as stepping-stones to the finding of a Solomon's seal; which, ultimately, is to solve the mystery of the great unknown. No matter what practical results may be achieved, they are naught. The metaphysician holds as beneath him the grovelling methods of detail search, and the ultimate is his goal."

After reading all of this article through we were befogged—we began to reflect on another subject, to make sure we had not lost our minds, or had the *Cosmos* run short of material and published this article to fill up space. Remembering, however, that the article was only an abstract, we thought it possible a mistake had been made and the rejected portion had been taken for the abstract.

We turned to the discussion which was opened by no less a person than Prof. Garretson, over a page of it gave us but little light, except that while the paper was being read Garretson heard a voice saying, "What is that fellow reading about?" Which he thought came from a young man,—not the voice of age. Could it have been an angel in confusion seeking light from our learned friend, Dr. Garretson? Indeed might not Dr. Garretson for the time being have been bewildered, for at the close of his remarks he refers us to a chapter in the *Dental Cosmos* on pyorrhea alveolaris and asks us to read it, and says we shall find it such a chapter of nonsense that we will acknowledge the truth of what he (Garretson) was trying to talk about. Which of the two articles he refers to, as there are two, one by Dr. Kirk and one by Dr. Pierce, we do not know so we reread both, and more than ever are convinced, after the second reading, that they are both the best on the subject we have yet seen. Thus with the mystery

still more mystified we turn to the discussion by Dr. James Truman, our friend and teacher, who can at all times make a speech of any length, and he could only get in a few lines out of which we can get no light, the conclusion says (to be continued) Don't!

The International Dental Journal for December contains a number of interesting articles. The first paper, on "The Causation of Dental Erosion," by A. P. Brubaker, M. D., D. D. S., suggests a new method for the prevention of those erosion cavities which are so often seen in front teeth. The essayist takes issue with Dr. Jas. Truman, Dr. E. C. Kirk, and others as to the pathology of dental erosion. He thinks the destruction of the enamel is the result of an acid formed as a result of a pathological condition of the labial glands. After a number of experiments, the writer recommends that the glands be destroyed by "electrolysis." The destruction of the glands should certainly be effective if they are the origin of the trouble.

Dr. E. C. Kirk has a paper on "The Laboratory Method in Dental Education," wherein he advocates the practical instead of the didactic method of instruction. This article will receive due consideration in a subsequent issue.

"Some Details as to the Care of Dental Instruments" is the subject of a paper by Wm. H. Potter, D. M. D., which calls attention to the necessity of keeping the instruments used in everyday practice well sterilized. The writer recommends the use of the Arnold Sterilizer, with a zinc tray made to fit, to accommodate the instruments. These are covered with a solution of soda carbonate and raised to a steam temperature for a certain time, after which they are dried. This is a subject which every practitioner should be informed upon, as, owing to the recent advances made in bacteriological research, it is a very easy matter to carry the germ of a disease from one patient to another on an unclean instrument.

"Cervical Cavities and their Treatment" is the subject of a paper read by Wm. L. Fish, D. D. S., before the Odontological Society of Pennsylvania. The writer showed the model of a new clamp for reaching the cervical margin of cavities, which, judging from the description, should prove effective. Every operator knows from experience how difficult it is to fill and finish a filling at the cervical margin, and any instrument that will aid in that direction should be gladly welcomed.

"Is Prosthetic Dentistry Lagging? No," is a question asked and answered by Wm. H. Trueman, D. D. S. The writer contends that prosthesis has advanced in proportion with operative dentistry, which is no doubt true. It is a question whether there are today as many dentists capable of putting up a gold or porcelain set of teeth as there were before the introduction of rubber as a base for artificial teeth. The writer seems to be under the impression that because a dentist makes rubber sets of teeth for the poorer class of patients, he is, consequently, of little importance in the profession. The trouble is that most men with such practices are satisfied to do nothing else than make rubber work on the charlatan plan of practicing. Those men never think for the good of their patients, but of the dollars that are in sight, so in consequence the "mouths of the hewers of wood and drawers of water" suffer..

There are the usual reports and discussions of society meetings.

The editorial is a resume of the growth and management of the journal, with a plea that all Dental Societies publish their own proceedings, on the ground that it is unprofessional to "barter" its work for a consideration. On this topic more anon.

In the Foreign Correspondence there is a London letter, in which the writer states an American graduate can practice in England if he only affixes to his name the name of the college from which he graduated. There is no doubt that if an American graduate establishes himself anywhere in England, and stands his ground, he will not be molested, as the English law, as it stands, is so broad that it offers many loop-holes for evading it. The English dentists, as a profession, hope to see "American Dentistry" cried down, as they allow an association in London, made up of registered and non-registered men, called the "American Dental Institute," to resort to all kinds of methods which they advertise all over the country, to bring down public condemnation, and then claim that it is *American*.

The writer, who signs himself "X," seems to be thoroughly familiar with the conditions, and, as he says, anyone can go over there to practice without "let or hindrance."

The Dental Review for November has for the two first papers college addresses by Profs. L. L. Skelton and Louis Ottofy, teeming with advice to students. Both articles are above the average of

such productions. Dr. H. A. Palmer, of Wisconsin, makes a plea for the retention of the first permanent molar; nothing strikingly original is to be found, the teaching being orthodox. Dr. L. J. Stephan, of Wisconsin, presents some thoughts on the "Dental Education of the Public," which is very, very good in its conclusions and recommendations. Societies have in the past published instructions for the guidance of the public, and if we mistake not a very useful book was written by Dr. A. Holbrook, of Milwaukee, which will serve as a beginning for the State Society.

Dr. C. R. Taylor, of Illinois, has a short paper on "The Treatment and Filling of Pulpless Teeth." This paper is essentially devoted to a consideration of the necessity for thorough instrumentation of the canals, and then recommends the filling of roots with gutta percha and copper points. Directions for the latter procedure are complete and accurate.

Dr. F. K. Ream, of Illinois, has something to say about "New Medicines and their Application in the Mouth." This is mostly a review of the work of other authors, except the closing portion which is devoted to the dehydration of teeth to produce insensibility by the use of alcohol from Rust's dehydrator.

The proceedings of the Minnesota Dental Society occupies twenty-three pages in which is considered the Dental Chautauqua Reading Courses, Articulation of Gold Crowns, and A Combination Crown and discussions thereon. The latter is interesting, but as we cannot reproduce the discussion the reader is referred to it (pp. 806-821).

A Model Report of a Clinic is the next article, which is alluded to by the editor, a little further on in the editorial pages.

Is the Profession Overcrowded? is the subject of the leader, which we epitomize by saying, in numbers, yes, in attainments no. Then there is a New York letter. * * * The beginning of "Root Filling" is fixed at 1824, by Emma E. Chase. This is definite. Reviews and news notices fill the remainder of the monthly issue, and the announcement of the production of an electric furnace for baking porcelain by Dr. W. H. Taggart, Illinois. We will await the description of this new method with much impatience, as Dr. L. E. Custer, of Ohio, has also discovered a method of doing the same work with the same agent—electricity.

PAMPHLETS.

PROCEEDINGS OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.—Eleventh Annual Meeting, 1894. Louis Ottofy, Secretary. A copy of this should be in the hands of every secretary of all state boards in the United States. The codified laws of the Association are printed as an appendix.

A case of contusion and rupture of the *Ilium*, by F. H. Wiggins, M. D. Reprinted from the *New York Medical Journal*. Hydrogen Dioxide was one of the best therapeutic agents used in the treatment of the above case. *Verb. Sap.*

WHAT HAS DENTISTRY TO DEMONSTRATE AGAINST THE HYPOTHESIS OF ORGANIC EVOLUTION? By W. G. A. Bonwill, D. D. S.

One of the thoughtful papers read before the Congress and reprinted from the Transaction with a folded *insert*. Illustrated. This paper caused a heated discussion in the section which the reader will find in Volume I., page 226.

News Summary.

It is better to lose a pint of blood than to have a nerve tapped.

If we could only use anti-toxine in pyorrhoea how the annules would jingle.

Mr. Demontporcelet, one of the teachers in the Institut Odontotechnique, is deceased.

One of the "eau oxygeni" manufacturers has his trade mark O! before H₂ O₂. O O O!

Acetic acid 7 per cent is more powerful than corrosive sublimate. (Johns Hopkins reports).

Try a little No. 4 tinfoil or shavings of tin when you intend to use a amalgam and see how it works.

Will we ever see a "Jecko" again? Wonder where he, she or it is—on a dusty shelf or where?

Sulphur has been recommended by L. N. Seymour, D. D. S., for cementing inlays, metallic and porcelain.

Dr. A. H. Peck has succeeded to the chair of Materia Medica and therapeutics formerly held by Dr. A. W. Harlan in the Chicago College.

A movement is on foot to attach a dental department to the University of Texas. We nominate John C. Storey, M. D., for Dean.

The Illinois State Board of Dental Examiners has decided to not issue a permit to practice to any undergraduate during the actual college term from September to June inclusive.

It is possible to produce chloroform narcosis when one is asleep. Recently a child seven years of age was chloroformed while asleep and a tooth was extracted; the child awoke two hours afterward.

The Cincinnati Hospital, one of the largest in the country, recently added to its Clinical Department a staff of Consulting Dentists. Drs. H. A. Smith and W. D. Kempton received the appointments..

ONE death from hypnosis has been reported so far—in Germany. There are no hypnotists in Chicago in the dental ranks as yet. We suppose that a hypnotic post-graduate school of dentistry will be the next work of some ambitious *clientless* dentist.

The American Dental Association got a divorce from clinics at the late meeting at Old Point Comfort. This staid and dignified body should not try to usurp the function of a post-graduate school of technics; science, a little theory and large notes on Practice with education and literature should satisfy it.

A man in England swallowed a vulcanite plate holding two central incisors, and large enough to extend from cuspid to cuspid, with two clasps attached at either end of the piece. After a few days living on bread, oatmeal, rice and vegetables it was passed through the anus—not having caused any pain or bleeding.

The glad New Year, 1895, faces us. Wonder where you will be this time a year hence. No matter, but do not forget to send ten dollars for a set of the Transactions of the World's Columbian Dental Congress. Send to Dr. J. S. Marshall, 34 Washington St., before they are all gone. The work has been electrotyped and when an extra five hundred are needed he can have them struck off. No library will be complete without the two volumes.

Huchard considers digitalis the remedy *par excellence* in feebleness of the heart in cardiac disease. Strophanthus calms the heart without strengthening it, and exercises but little influence on the urine. Spartein is a tonic to the heart, but has no diuretic action. Caffein and theobromin excite diuresis and may act favorably in feeble conditions. The author has also administered cactus grandiflorus, coronilla, and other similar remedies, but still holds that digitalis is the most marvellous weapon in the therapeutic arsenal. Without this powerful drug cardiac therapeutics does not exist.

"The Skin of His Teeth" is the subject of a discourse by Mr. F. T. Paul, of Liverpool. Nasmyth's membrane is little thought of in dental practice; without looking in a book how many dentists could tell off-hand its origin, what becomes of it and its uses, if any? Even such a small thing as a tooth has caused philosophers to cease philosophizing, generals to lose battles, preachers to lose their thread of discourse and poets to write drivel instead of sonnets or elegiacs.

Have you ever used a porcelain inlay? If not try one in the labial face of an oral tooth. Inlays of white or grey vulcanite may be used on bicuspid or molars. Celluloid might be utilized or the so-called zylonite. Many metallic

inlays may be made much more quickly than a filling, especially for deep seated cavities not exposed to view. By soldering a loop to the under surface they may be set with a hard cement or gutta-percha and will prove durable.

The oldest dental society in Chicago holds its meetings in cramped quarters—not enough room for one-half the membership, no place for visitors, no conveniences for illustration of papers, no light, no ventilation, nothing attractive. How the society can be expected to grow and attract visitors we do not know. Why cannot all the societies make arrangements to meet in the same place, on different evenings, and try and make it comfortable for everybody?

The effort of last year, beg pardon, the year before had its effect on the attendance and the character of the proceedings of nearly all dental societies in the United States. A new era is beginning, the bad times (financially) are about over and the cheerful dentist must look forward. Do not look down in the mouth, improve your opportunities. Study, invent, improve, resolve to render better service than ever and you will wear a ribbon, if not *the* ribbon, as Sherlock Holmes says.

Di-iodoform is to be used in place of iodoform, being almost odorless. It is a germicide. (*Phar. Soc. de Paris*).

R	Acid carbolic (melted).....	minims L.
	Acid Acetic.....	" XL.
	Water.....	3 oz.
	M.	

Sig. diluted, as an astringent and stimulant in the antrum or in the mouth. Around carious and necrosed bone, in sinuses, etc.

Queer.	A card came the other day, saying:	
	For administering gas (?).....	\$1.00
	For extracting each tooth.....	50

Has it come to this, in a cosmopolitan city, that a professional extractor of teeth will advertise to the profession such inconsequential fees as an inducement for patronage?

The fees (advertised) by the "high up" dental parlors and the "low down," joints on the Bowery are equal to the above. Even a shilling in England is considered not half enough for extracting; half a crown being about the smallest fee for such an operation. Don't do it again. Raise your fees.

We have enjoyed such a long rest from incorporations of new dental colleges in Illinois that we are growing heartsick, tired and hopeless for the future. But, no, we forget the Parlor, the Institute, the Associations, ancient and modern, superior and inferior, from New Orleans to Boston, San Francisco to Philadelphia, New York to Chicago, all these and many more flourish in our midst; they are urban, suburban, metropolitan, cosmopolitan, *urbs in horto, polyglotto et Italeona*. Oh, no, we are not filled with *ennui*, we are growing. This is no longer a village, it is the home of the two million club, the paradise of dental batteries, the resting place of the fabricator of the incisor gold crown and other aggravations of public decency. Were it not for such blemishes on the horizon, 1895 would have a too, too brilliant promise for all of us.

LOCAL ANAESTHETIC.

R Chloral Hydrate,
Gum Camphor.
Cocain Hydrochlorate.

} aa gr. LXXV.
gr. VI.

M. Triturate in a mortar until liquified.

Sig. Use as a local anaesthetic on the skin, mucous membrane or hypodermatically. This may be used after opening an abscess, in the socket after extracting a tooth—for removing pulp or portions of a pulp. Use it also in pyorrhea pockets before removing deposits. In odontalgia, any solution up to 20 per cent. cocain may be used.

GOOD READING.

Two of the best articles of the year 1894 in dental journals will be found in the *British Journal of Dental Science*, General Pathology and Surgery, by E. W. Roughton, M. D., and in *The Dental Record* the running article, Dental Microscopy, by A. Hopewell Smith, L. R. C. P., London. Any student or old or young practitioner could not fail to be benefited by reading both of the above continued articles. Both are illustrated copiously and the pictures are well done and understandable.

THE DENTAL PROTECTIVE ASSOCIATION.

ANNUAL MEETING.

The sixth annual meeting was held at the Grand Pacific Hotel, December, 15, 1894. Officers were elected as follows: J. N. Crouse, president; E. D. Swain, secretary, and Truman W. Brophy, director. An auditing committee was appointed to examine the accounts of the Association, and reported them to be correct.

HAYDEN DENTAL SOCIETY OF CHICAGO.

The annual meeting of the Hayden Dental Society, was held on Wednesday evening, December 19. A paper on "Anæsthesia" was read by Dr. A. J. Oakey, and a brief report of the semi-centennial celebration of the discovery of Anæsthesia, was read by Dr. Louis Ottofy. The following officers were elected for the ensuing year: President, T. E. Powell; Vice-President J. Messenger; Secretary, A. J. Oakey; Treasurer, M. B. Rimes. Board of Directors to January, 1898, Louis Ottofy. The Society will hold its annual banquet on the third Monday in January, 1895.

ODONTOLOGICAL SOCIETY OF NEW YORK.

OFFICERS FOR 1894-5.

President, A. L. Northrop; Vice-President, Wm. Carr; Secretary, A. R. Starr; Treasurer, J. Bond Littig; Corresponding Secretary, Geo. A. Wilson; Curator, J. Adams Bishop.

EXECUTIVE COMMITTEE.

S. G. Perry; Wm. Jarvie; W. W. Walker, Chairman, 58 W. 50th street, New York.

The Dental Digest.

Vol. I.

CHICAGO, FEBRUARY, 1895.

No. 2.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 6, No. 1, Vol. 1.]

In our article in the first number of the DENTAL DIGEST we described the qualifications a dentist should possess, enumerated very briefly the requirements of an office outfit, and mentioned reasons why the duties of a dentist required greater and more varied ability than any other occupation in life. As we proceed we shall try to show more fully why this is so and why his compensation should be greater.

In order to have your services appreciated, you must know yourself that they have been properly performed, and you must give to them the proper value. If you have the ability to render good service as a dentist, this ability must have cost a great outlay of time and money, and according to the law of compensation it should be paid for in accordance with the effort made. Besides the time, effort, and expense necessary to acquire a professional training, to conduct a dental practice successfully requires constant painstaking effort. You should go to your patient with neat and clean attire, and you should be in the best possible condition physically. The first, that your patient, because of your absolute neatness both in person and everything connected with the office, will be favorably impressed. The second, that your physical condition being good, you are able to think and reason correctly and thus give your best judgment in the many difficult problems which

present themselves in everyday practice. Moreover, feeling well, it will be much less effort to keep an even temper, a faculty which is of the greatest value; once give way to your temper and you are almost sure to lose control of an unruly patient—be it child or adult—if you do not lose the patient as well. Unless a practitioner can govern himself he cannot expect to control his patients.

Probably no part of a dental operation is so dreaded as the preparation of sensitive teeth for filling, and anything that can be done to lessen this suffering is the duty of a dentist. The dam is often a great aid. Let us see how we can adjust it with the least discomfort to the patient.

First, have every tooth absolutely clean. To insure this a little "Eucalyptus Extract" is of the greatest aid. Second, how to adjust the dam. When it is not desired to include the last molar, all that is required, as a general rule, after punching the holes which should be far enough apart to not obstruct circulation in the gums between the teeth, is to force the dam between the teeth, which can readily be done with waxed thread, or better, with floss silk, by the assistant, while the operator draws the dam over each tooth.

The adjusting is much of the time made unnecessarily unpleasant by the use of ligatures, or clamps. Where teeth are close together nothing is needed to hold the dam; but when they are not, something is required. What is the common practice? To tie a ligature tightly around the neck of the tooth. This should be stricken from the list of helps as being injurious to the periosteum, often creating enough periostitis to make the condensing of a gold filling a serious ordeal to the patient. We will qualify our statement with one exception, viz., when the teeth are extremely close together so that it is very difficult to get the dam between them by the method just described. In such cases tie two white beads, white being preferred as they are more readily seen, to a ligature about half an inch apart, and pass this ligature around the tooth twice, the second lap going between the beads and gum. Two or more of these beads can be tied around as many teeth as is desired before the dam is adjusted, and used to assist in getting it in place, the ends of each ligature being brought through the hole in the dam for that particular tooth. In this way we have a white bead on either side of the tooth. The dam can then be stretched over

the tooth and held by the two beads on either side, which are of great aid in getting it properly adjusted. If the method described is observed, the ligature need not be forced under the gum or in any way disturb the periosteum. After the dam is adjusted the ligature with beads can be removed if desired.

This method of holding the dam may not be new to many, nor often needed, but it was one of our great helps twenty years ago, and is yet of value at times. It is not given here as anything new, but will be of great service to younger practitioners who may not as yet have become expert in the use of the dam. Although clamps have taken the place which the beads often filled before these instruments of torture, viz., clamps, came into use, we do not wish to be understood as condemning them in toto, but simply say that they are used much more frequently than they should be. Crowding a clamp over a tooth and keeping it there long enough to perform a difficult operation is neither humane nor wise, because there are methods which accomplish the same results, but have not the objectionable features that go with the clamp.

The best plan for adjusting the dam is the third method and the last that we shall speak of. It is not a new method, but has been very useful to us for twenty years—the use of spunk and sandarac varnish. With the surface of the tooth absolutely clean and well dried, spunk can be made to stick and to hold the dam against almost any force that is ever applied. The varnish should always be quite thick, say as thick as stiff molasses, and two or more bottles should be prepared and ready for use so if one is either too thick or too thin, the other may be just right, a very important item.

When the dam is to be secured to a last molar and you have stretched it over the tooth, your assistant should be ready with a flat, curved instrument, the length of the curve being such that when the shank rests against the grinding surface the end of the curve will be resting against the tooth very near the gum. It can readily be seen that with such an instrument your assistant can easily and surely hold the dam and keep it from slipping off while you are drying the surface, placing the smallest amount possible of the sandarac on the surface, and applying a bit of soft spunk. Make sure not to have any of the varnish on the spunk which comes in contact with the dam, nor on any part except that which comes in contact with the tooth. However, if the

muscular force is very great, and the resistance is too much to be held by the varnish, substitute for it a little oxyphosphate of zinc, using the same precaution to have it adhere only to the surface of the tooth, which in either case must be clean and dry. We described and illustrated this method in clinics years ago and are at a loss to know why it is not more generally adopted.

If we have seemed to give this question of how best to apply the dam too much space, our only excuse is the belief that faulty methods often cause much discomfort to the patient and loss to the operator, who is not aware until too late that his patient has left him and gone elsewhere, trying to get rid of some of the unpleasant experiences unnecessarily imposed.

Unless one has had a cavity in a sensitive tooth prepared and filled, he cannot appreciate the feeling. Perhaps the dentist should be operated on at frequent intervals to remind him of how severe an ordeal the patient is constantly undergoing. But why dwell on this point here? Because much can be done to lessen this extreme torture, and too often the operator is careless in this respect to a censurable degree and to his own detriment.

To approach your patient in a delicate manner, pressing the lips back carefully, is almost sure to create a favorable impression, or rudely, quite as sure to cause annoyance at the outset. Again, much can be done to lessen the severity of dental operations. The use of the dam makes it possible to obtund much of the sensitiveness of dentine. There are numerous remedies, of which I will mention two, viz.: carbolic acid and tincture of aconite root, commencing with the carbolic acid and alternating with the aconite. If two or more cavities can be treated in the same sitting by including several teeth in the damming, all the better, alternating continuously the two remedies named. What it is that makes these remedies so effectual I can only surmise, but they seem to partially anesthetize the nerve sensation. This treatment requires time, but the relief given fully repays for the effort.

Now for the removal of decay and shaping of cavities. It has always been accepted as a fact that a good, sharp, hatchet shaped excavator was the least painful; however, we trust we shall be pardoned for discussing this proposition here. As we said, the sharp excavator has heretofore been considered the least painful instrument for the removal of decay and the shaping of sensitive cavities; but

the best instrument for that purpose we now believe to be the modern improved bur, which is made on scientific principles. The arrangement of the blades is such that they clear themselves, and shave or cut the dentine instead of grinding or tearing it to pieces. The old style burs, even when new, were little less than instruments of torture, requiring heavy pressure to make them take hold, and soon clogging, causing much unnecessary suffering and accomplishing but little in a given time.

In fact, we believe it to be the duty of all operators to use nothing but the sharpest of cutting instruments when preparing sensitive cavities. A rigid observance of this rule would greatly lessen the suffering which is now inflicted upon the patients requiring our services. The bur that is used to cut away the surplus enamel should not be used to cut the sensitive dentine, as cutting the enamel dulls and destroys the keen edges of the instrument faster than any other use to which it can be put, and the humane as well as the profitable thing to do is to change when cutting dentine and use only the sharpest excavator or bur that is made. Should it seem that we are dwelling too long on the subject of lessening suffering, remember there is no one thing that will increase favor and for which your patients will pay so liberally as the effort to relieve this extra suffering. We have never met a patient so penurious but what if he were made to understand that the time consumed in medical applications, the expense of sharp instruments, etc., lessened the severity of his suffering, would not willingly pay the extra cost to be thus relieved. The expense of sharp burs, either new or resharpened, is very little compared to the time gained by the use of sharp instruments. But barring the question of self-aggrandizement, consider it from the standpoint of duty. The dentist who inflicts unnecessary suffering, or who neglects to relieve his patient from all suffering possible, by adopting every legitimate means, is certainly censurable and does not deserve any degree of success.

We had hoped in this paper to discuss at least a portion of the questions concerning methods and materials which a dentist uses both in operative and prosthetic dentistry, but time and space will not permit it, so we shall have to defer these questions until the next article.

. [TO BE CONTINUED.]

PREVENTIVE DENTISTRY.

BY I. P. WILSON, D. D. S., BURLINGTON, IOWA.

That very many of the operations performed in a dental practice could have been avoided, had the teeth been properly cared for, there can be no doubt.

The masses of people do not understand the importance of hygienic dentistry. Many, who observe the most scrupulous care as to personal cleanliness, and are even fastidious as to what they will eat and wear, and religiously guard every avenue of approach for disease that surrounds their homes or their places of business, yet they tolerate offensive roots or stumps of teeth in their gums, with tartar and decomposed food upon their teeth. These impurities vitiate the air that they breathe, and poison the food that they eat in the first process of digestion, and thereby render impure the blood which must supply the continued demand made upon it for reparative material.

The masses of people need to be educated regarding this all important matter. Who shall be the teachers? Were it not that parents, as a rule, are ignorant of the consequences of the neglect referred to above, we might excuse ourselves, and leave the rising generation in the hands of fathers and mothers. But we cannot, as a profession, afford to do this.

In the first place, a dentist should set an example of cleanliness. His teeth should be scrupulously clean, and his breath pure. He should not hesitate to speak frankly and freely to his patients regarding a personal matter that has so much to do with health, not only of the dental organs, but of the entire organism. Sensible people will appreciate such advice and instructions, while others who are more thoughtless, I had better said more senseless, will perhaps manifest indifference, and they may give you to understand that they do not appreciate any gratuitous advice, as they may deem it, pertaining to their personal habits.

The physician or the dentist who will stand by and see his patient's health, if not his life threatened with danger, and not fearlessly sound the alarm, is not worthy of his high calling.

Not only do the interests of our patients demand instruction at our hands, but our personal interests demand it.

It is the privilege of every dental practitioner to build up a clean, desirable practice that will not give him discomfort, nor

endanger his health. Let me emphasize more fully what I would say with an illustration:

Mrs. A. requests you to kill the nerve, treat and fill an aching tooth. On examination you find her teeth coated with tartar and decomposed food. You find some dead useless roots or stumps of teeth in her mouth, you also find that a number of her teeth are decayed and need filling, and, as a matter of course, you find Mrs. A. with an exceedingly unpleasant breath, and by no means a desirable patient upon whom to operate. You very properly suggest that a general renovation is necessary; that after an application has been made to devitalize the pulp, and relieve her of pain, that her teeth must next be cleansed, and then *kept* clean. The necrosed roots must be extracted, and the decayed teeth filled.

If this course of treatment is objected to by the patient, freedom from pain being the only object sought, I should promptly decline treating and filling said tooth, having too much respect for my olfactory nerves, as well as my precious health to voluntarily place myself under such contaminating influences.

It seems to me that in such cases our duty is plain. We cannot afford to jeopardize our own health, nor is it right that we should encourage human beings in totally disregarding hygienic laws. This may seem like heroic treatment, but nothing else will sufficiently arouse some people, and awaken their self-respect and pride, so as to stimulate them to action.

But I wish now to call attention to the thought that was first in my mind when I sat down to write this short paper.

It is a well known fact that, as a rule, the teeth of boys and girls decay more readily during their teens than in subsequent years. The reason is obvious, and need not be dwelt upon here. The preventive treatment I have to recommend is simple and effective, especially in the bicuspid and molar teeth. When these teeth first emerge from the gums, the enamel fissures are open, and a fine pointed excavator can readily be forced down into the immature dentine.

The imperfectly developed enamel in these fissures is sometimes mistaken for caries, and is treated accordingly.

Instead of attempting excavation in such cases, let the fissures be thoroughly syringed out with warm water, then dehydrate with alcohol, dry thoroughly, and fill with cement. Then place a little

of the dry powder over the filling and press it firmly with the finger, forcing the cement into the remotest recesses of the fissures, and excluding the moisture, if necessary, with the finger still upon the filling, and holding it there until crystalization has taken place. Then dress off the surplus, and in nine cases out of ten decay has been prevented, and without causing any pain from excavation.

But if decay has been prevented for only a few months or years, and the same treatment is then repeated, and the tooth is preserved through those early years of immaturity, and is afterward filled with gold, more of the tooth structure has been preserved, its natural color retained, and much less pain has been inflicted.

I need not enumerate the different conditions of the teeth, particularly in youth, and in pregnant and nursing women where cement may be used to great advantage in preventing decay.

Preventive dentistry should be practiced more by the profession than it is, and our patients will not be slow to appreciate our efforts, and remunerate us more willingly for preventive treatment, than for more taxing services.

A NOTE ON CAPPING A TOOTH PULP.

BY C. R. TAYLOR, D. D. S., Streator, Ill.

It is often troublesome to cap a pulp with oxyphosphate of zinc on account of that material sticking to the instruments used to convey it to the parts desired to be covered without spreading it over the whole of the cavity. By the use of the following method the troublesome part can be avoided.

Take a piece of clean writing paper of the proper size and on the paper place a sufficient quantity of the cement, soft or hard, as the case requires; having taken hold of the corner of paper with the pliers before the cement was placed on the paper, carry the paper and cement to the parts to be capped, pass a burnishing instrument against the paper and burnish the capping to its place. If it is desired to get the benefit of the sticking qualities of the cement to assist in holding the filling in the cavity, put cement on both sides of the paper, before placing it in place.

The same method can be used with the paper and chloro-percha.

Not only does the paper act as a convenient carrier but it is a splendid non-conductor. Superior to almost everything used for that purpose.

Reports of Societies.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

[Continued from page 30, No. 1, Vol. 1.]

The following paper was then read, entitled,

SUGGESTIONS ON THE TREATMENT OF BICUSPIDS.

BY CHAS. W. JENKINS, D. D. S., ZURICH, SWITZERLAND.

My invisible friend, Jack Tarnkappe, is a very welcome guest at the office. His presence neither disturbs the patient nor hinders me. To have, besides the operator, an assistant, a companion or two, a student and a colleague bending over the chair, suggest the coroner's jury or a dental clinic, both excellent in their place; but

"Let 'em stay there, do you see?"

As most of our patients are not men of brass, but women who think their 'nerves are delicate,' we are bound to keep at a distance all disquieting associations, and, in general, to have no more onlookers present than are necessary to expeditious work. Jack's invisibility, therefore, and, I may add, his inaudibility also, (to all but myself) are immense advantages. He does not obstruct the light nor divert the eye a second from the work in hand. But as he is both the prince of good fellows and the pearl among dentists, his timely suggestions, like angels' visits, are the more prized for their rarity.

Jack usually makes known his presence by a cheery word in my ear when I am in the middle of a perplexing problem. Sometimes he says: "It's only pluck-luck that you need to-day, old fellow!" and then I know that I am on the right line and only need to be a little more persistent than the devil (no disrespect intended!) in order to conquer all difficulties. Sometimes he bids me stop just where I am, make some polite excuse to the patient and go away into another room to quiet my own tired nerves for five minutes. While I am gone he administers invisible chloroform to the patient, or hypnotizes him, so that when I return both patient and operator are refreshed by new powers of endurance.

One day while adjusting the rubber-dam, having sinfully neglected to use cocaine about the margin of the gums, I suddenly

heard him whisper, "Chloro-percha will hold that dam water-tight, without the thread." Since then I have used chloro-percha in a great many cases, avoiding the torture of drawing the silk under the gum.

At another time I was worrying my patient in the attempt to crowd dam and silk beyond the edge of the cavity, which extended far under the gum.

"Reduce your compound problem to a simple one," he said, "by filling the lower portion of the cavity first with amalgam."

My temper was off color that day, so I doggedly persisted in trying to effect my purpose by methods that had sometimes succeeded. "This is what we call a treatment case," I remarked to the patient, with all the professional gravity at my disposal.

"It's maltreatment, you donkey!" cried Jack, so vehemently that, although I well knew that no one else heard him, I could not but be startled. "You are inflicting pain in the interest of a foolish experiment that has failed a hundred times before. Prepare the cavity as for immediate filling, without reference to the root; close the mouth of the pulp-canal and fill the center of the cavity with a bit of wood, leaving sufficient room and retaining-shape for amalgam at the neck; fill that with a good sub-marine amalgam and after it has become a little hard you can affix the dam as in an ordinary case; then take out your plug and treat."

Though not applicable to all cases, this method, suggested by Jack, has been of considerable service to me. It was, however, to present the views of my invisible friend regarding the filling of bicuspid that I sat down to write this paper.

It was while following the prescribed method in shaping two approximal cavities in one of these notoriously unfortunate teeth that I was taken to task in the following fashion: "Never mind the traditions of the elders nor the ambition of the young operators, who tell you that the coronal ridges must be cut away and a dovetail be made to anchor those side fillings. Work for a triumph of common-sense rather than a triumph of art. It is your business to save that tooth. When you have reamed out that fissure deeply enough to make what you regard a strong dovetail, and have cut away the coronal ridges, you have split the tooth in halves. You can split an eel from end to end and cut out and cut off nearly everything that belongs to him, and he will swim away pretending

to enjoy life the same as ever; but your bicuspid is a creature that gets discouraged when his insides are trifled with. When you have cut a channel from the distal cervical wall to the mesial, and filled the double-compound cavity resulting with cohesive gold—

"Nothing but dynamite can throw it out," I said interrupting.

"No," he replied, "nothing but dynamite can start the filling, but you have fairly insured the early destruction of the tooth. One of the thin halves is likely to break away, leaving a golden monument of misapplied skill."

"Not if I carry the gold over the margins and clamp the two halves together," I answered confidently. "And I shape the crown so that the force of mastication can not come on the weakened cusps."

"You can only prevent that," he said, "by making the whole biting surface of gold. You have not only to provide for the ordinary regular occlusion of the teeth, but also for the grinding of hard substances and the sudden strains that come in chewing. A bit of bone or a bird shot caught between the weakened half of a tooth and its antagonist is enough to thwart all your skill. I have seen many instances of this when the work had been done by the best operators. Besides, but if both approximal surfaces and the masticating surfaces are of gold, you might as well,—much better,—cut off to the gum and set an all gold crown. I would rather wear beggar's motley, a patch on each elbow, each knee and two on the sitting-down place, six colors, than a gold bicuspid spotted with natural inlays. But in many cases,—in a large proportion when a reasonable treatment has prevailed from the first,—these dovetailed fillings are unnecessary.

Fill the crown-fissure with oxyphosphate; it will last a long time in that position; or if you prefer, cover it at once with gold, leaving all the cement possible to bind together the threatened parts. Then line your approximal cavities with the same, putting a strong buttress of cement against the coronal ridge; cover with as thin a filling as you can make secure; you will keep your bicuspid longer and it will be better looking while it lasts. You will not have either the cracking away of the enamel at the ridge or the splitting off of the labial half, making your brilliant and costly operation useless."

"But we have a large number of cases where the division into halves has already been accomplished," I remarked.

"Apply the same principle as far as conditions allow. Make the cavity as dry as a Calvinistic sermon; fill it with the stickiest and strongest oxyphosphate you can get; and cover with only enough gold to protect the cement from the fluids of the mouth."

Jack's theories did not immediately convince me, but I began at once to apply them to particular cases of small bicuspid of poor structure. Having discarded the custom of inserting in incisors a greater mass of gold than is needed to prevent renewed decay, I was open to a proposition of this kind. Although it concerns only a small matter of detail,—the preservation of the coronal ridge and of all the dentine possible, in bicuspid,—the class of teeth that most try our skill and judgment, it has given me good results so far as applied. I strongly recommend it to the attention of my colleagues.

The secretary read two short papers presented by Professor MILLER, Berlin, who, being on a visit to America, was unable to be present.

A CASE IN PRACTICE.

BY PROF. W. D. MILLER, M. D., D. D. S., BERLIN.

The question of alveolar abscess in connection with teeth containing living pulps, has gained very considerably in interest through the recent discussions on the etiology of pyorrhoea alveolaris.

When an abscess of this kind is now observed, it is put down as the result of a deposit of uric acid or urates in the pericementum, in consequence of a general gouty diathesis and is considered as evidence in support of the view that pyorrhoea alveolaris must have a similar origin.

The following case presents some points which seem to me well worth considering in this connection:

Herr X. presented himself with a left superior central incisor very slightly elongated and slightly looser than its perfectly healthy neighbor on the right side. The tooth was distinctly discolored. On the gums, about one-half an inch above the margin, was a marked, ridge-shaped hard prominence, from the center of which exuded on pressure a minute quantity of pus. This condition of things had existed for some years. The amount of pus evacuated was never considerable and sometimes it disappeared altogether for weeks.

Being sure of a putrid pulp, I trepanned the tooth from the lingual surface, but was very much surprised to run upon living tissue. The pain produced was not intense and was pronounced by the patient as "not feeling like the nerve." Nor did it at all produce upon me the impression.

The possibility has suggested itself to me that we have here a case where the chronic irritation at the apex of the root has produced absorption of the cementum and dentine, laying open the canal of the root and that granulations from the periosteum or bone marrow have grown into the canal as has been repeatedly observed in replanted or implanted teeth.

Nothing seems to indicate the presence of any deposit on the side of the root.

The patient is a young officer of most perfect health, in whose family there has never been a trace of gout.

DISCUSSION.

DR. KELSEY, Marseilles: "I think the most of us are too ready to talk of our successes, and to omit all mention of the failures which are generally the most instructive. We are ashamed of incorrect diagnosis, errors of judgment to which all are exposed. More than once have I found a tooth loosened, extremely sensitive to touch, the gum much swollen and pus oozing out all around the diseased organ, and have unhesitatingly pronounced it dead, when lo! upon opening it I have struck a live pulp. In such cases I have wished for some unfailing method of determining the condition beforehand."

DR. MITCHELL: "A heated instrument applied to the tooth will generally settle the question."

DR. GUYE, Geneva: "When other means of diagnosis fail, I cover the adjoining teeth with a double piece of rubber-dam and direct a stream of hot and cold water alternately upon the exposed tooth."

DR. HUGENSCHMIDT: "Two parties seem to be fighting each other, one claiming that pyorrhoea is always a manifestation of gout, while the other maintains that gout is by no means always a manifestation present in those cases. Both parties seem to consider gout as a quite independent disease. On the contrary, gout ought to be considered as only one of the principal manifestations of the arthritic or uric acid diathesis, in which condition, through his manner of living or for hereditary reasons, the individual does

not use up all the waste material in his system. Under the form of uric acid or other undiscovered form, this accumulates somewhere, giving rise occasionally, under a determining cause, to one or more manifestations. If having before you a true case of pyorrhoea alveolaris, you ask the patient whether he has ever had gout, or whether gout has existed in his family, and he tells you no, you have only put aside one of the manifestations of the uric acid diathesis. Ask him then if he has had rheumatism, muscular rheumatism, rheumatic gout, migraine, asthma or eczema, which are all manifestations of the arthritic diathesis, and you surely will get an affirmative answer.

As other manifestations on the teeth, leaving aside buccal lesions, which are found in that diathesis and absolutely belong to it, I would mention recession of the gums from the necks of the teeth, or any post-eruptive erosions, not due to any organic or mineral acid, such as those formerly attributed to the use of the tooth-brush and which looks as if produced by a triangular file at the neck of the tooth; all these are due to arthritism. The arthritic not only does not use up his waste material, but through his diathesis he becomes either languid or too hurried and does not properly use his masticating organs. Civilization has pushed the preparation of food to such a point that he thinks he does not need them and contracts the habit of not using them. Nature is always on the lookout for useless organs, always ready to throw them off. If you look at the teeth of a hunting or street dog that is allowed to run about and chew anything he can get hold of, you will find his teeth in excellent condition. But examine the mouth of a dog that is always watched by his mistress, who is particularly careful that he gets no bone but only soft food, and you will find that after four or five years the dog will lose all his teeth by pyorrhœa. As regards treatment, all arthritic or gouty patients ought to be put on a special diet by the family physician, who should also prescribe plenty of open air exercise. The patient must be directed to eat slowly, using his teeth on as hard substances as he intelligently can. Morning and evening the gums should be energetically rubbed with the finger. If pus be present, I use the following treatment, which has given me the best results for the past five years, and which has contributed to consolidate many a loose tooth. Having removed the tartar as carefully as possible from under the gum, I wrap a platinum broach

with a few fibres of floss silk, dip it in pure sulphuric acid and pass it as far down under the gum as I can. If the pocket is large I do this a second time. The treatment is repeated three days after. When the patient returns you will notice a decided improvement. Immediately after the application the mouth is to be rinsed with a solution of bicarbonate of soda, eight grammes to one liter of water. Between applications antiseptic mouth-bathing three times daily."

DR. SPAULDING, Minneapolis, a visitor, being asked by the president if he regarded chewing gum as beneficial, said: "Massage is very beneficial, and the use of gum answers that purpose to some extent, and ensures the needed exercise for the teeth. I should hesitate to use pure sulphuric acid; but I rinse the pockets and apply the aromatic, following with a mixture of calendula, Pond's extract and aconite."

DR. MITCHELL: "I have seen a case similiar to Dr. Miller's which puzzled me very much. A lady had on the gum a swelling about the size of a pea. The pulp was alive and the alveolar process was breaking down. There was no pocket and nothing else abnormal visible."

DR. GROSHEINTZ, Basel: "Dr Andrieu, of Paris, used to cure by the actual cautery. He claimed by this means to promote vital reaction in the gum and cause the pocket to shrink."

A METHOD OF DETERMINING THE COMPARATIVE ADAPTABILITY OF COHESIVE AND NON-COHESIVE GOLD UNDER PRESSURE.

BY PROF. W. D. MILLER, M. D., D. D. S., BERLIN.

It is an old question, which used to be discussed at dental meetings some fifteen years ago, whether cohesive or non-cohesive gold adapts itself more readily to the walls of the cavity so as to produce a watertight filling. The question was never settled, neither side being able to convince the other. Still it is a question of interest to the dental profession and well worthy of being definitely settled.

If we fold together a sheet of cohesive goldfoil, No. 4, so as to form a square about an inch on a side and, after having annealed it, press a coin upon it, we obtain a fair impression of the coin and a better one than when we perform the experiment with non-cohesive foil. From this it has been concluded that cohesive gold is more adaptable than non-cohesive. This is, however, a con-

clusion which is not at all warranted by the conditions of the experiment. Press the coin upon a piece of rubber dam, by means of which we obtain a perfectly watertight joint, and when we remove it, we have no impression whatever. In other words the property of retaining an impression is not synonymous with adaptability.

In order to approach the question experimentally I have made use of the following apparatus:

A glass tube about a foot long and $\frac{1}{4}$ inch in diameter is fixed, by means of sealing wax, perfectly upright upon a silver coin about an inch in diameter, which has a hole in the center. The tube carries a platform about 2 inches above the coin, which serves to carry weights.

In performing the experiment we fold together half a sheet (or a whole sheet) of extra cohesive foil to a square about an inch on a side, anneal it and place it upon a perfectly smooth surface. Upon this we carefully place our apparatus. We, then, by means of a funnel, which is drawn out to a fine point, so as to give a very thin and regular stream of water, slowly fill the tube with water and mark the height to which the water rises in the tube before it begins to escape between the coin and the gold.

Now dry the apparatus and repeat the experiment with non-cohesive foil, not annealing, and note the height as before. Naturally the better the adaptation of the foil to the coin, the higher the water will rise in the tube before it begins to escape under the coin.

Repeat both experiments an indefinite number of times, weighting the apparatus with weights gradually increasing from 1-10 pound to two or more pounds. The weights may be made of lead and should be ring-shaped, so as to pass over the tube. Fresh gold must, of course, be used for each experiment.

The experiment may be varied by filling the tube to a certain height and noting the time which elapses before the water begins to escape, as well as the amount of water which escapes in a given time.

The following experiments gave the results indicated:

Exp. I—Apparatus not weighted. Non-cohesive foil. The water began to escape when it had reached a height of $2\frac{1}{2}$ inches in the tube. With cohesive foil the escape began at a height of only 1 inch or almost immediately.

Exp. II—Corresponding numbers for non-cohesive foil, $1\frac{1}{2}$ inch; for cohesive, 1 inch.

Exp. III—Apparatus slightly weighted. With non-cohesive, foil the water escaped at $2\frac{1}{2}$ inches; with cohesive foil, the water escaped at $\frac{3}{4}$ of an inch.

Exp. IV—Non-cohesive, $2\frac{3}{4}$; cohesive, $1\frac{3}{4}$.

Exp. V—Apparatus weighted with $1\frac{1}{4}$ pounds. Non-cohesive gold, $9\frac{1}{4}$; cohesive, $4\frac{3}{4}$.

Exp. VI—Tube filled with $\frac{1}{2}$ inch of water. Non-cohesive water begins to escape in 13 minutes; cohesive, water begins to escape in 6 minutes.

Exp. VII—Tube filled 1 inch. Corresponding numbers 3 and $1\frac{3}{4}$ minutes.

Exp. VIII—Tube filled with 10 inches of water. With non-cohesive foil the level sank 125 mm in 2 hours and 20 minutes; with cohesive in 1 hour and 40 minutes.

These experimental results seem to definitely settle the question, that under low pressure non-cohesive gold is more adaptable and gives a better joint than cohesive. It would be interesting to determine whether the same holds good for high pressures.

TUESDAY FORENOON.

DEMONSTRATIONS AND CLINICS.

DR. E. J. WETZEL, Mulhaus, gave a demonstration of the combination of cohesive and non-cohesive gold in approximal cavities. The operation was on the right superior first molar, anterior approximal surface. The pulp being nearly exposed, the doctor lined the cavity with Caulk's cement. He then placed two cylinders of soft gold (rolled by himself) against both palatal and buccal walls, thereafter wedging them in place by two more placed against the cervical wall. He then forced two cylinders of tin foil, similarly formed, by hand pressure against the previous two in the centre, thus holding the gold tightly in place. The filling was completed in the usual manner with cohesive foil. Dr. Wetzel thinks that it is better that the gold should not be made homogeneously hard, but he finishes with Kearsing's No. 4, rolled into ropes, or Williams' Standard, No. 40 or 60.

DR. DE TREY, Basel, demonstrated the use of the crystal mat gold of his own manufacture, a material which, as shown by his

similar demonstration of it two years ago, possesses remarkable qualities, enabling the operator to use pieces much larger than is usual with any other. The same striking result was achieved as then. It is to be regretted that no opportunity for the profession to test the general usefulness of this form of gold has yet been afforded.

DR. BRYAN presented a case of immediate prosthesis with his special forceps, illustrated by models, and also presented the patient to show the result. The two superior cuspids had erupted inside the arch and behind the temporary cuspids. The models showed such a condition of irregularity that the prospect of success with the usual regulating appliances would have been extremely doubtful. The patient, a young man of twenty-four, of firm bony structure, was operated on in Basel eight days before the meeting. Chloroform was administered, the tempory cuspids removed, and parallel perpendicular incisions made with a surgical saw in the engine, through the heavy alveolus from the labial surface along the sides of the roots and through and into the alveolus on the palatal portion of the alveolar wall, but only slightly beyond the line of the root.

The brace or fulcrum, fitted to the labial portion of the alveolus and resting on a rubber pad, supported the one round jaw of the forceps, while the other was adapted to the palatal aspect of the cuspid. Strong pressure was required to force the tooth with its outer wall of alveolus forward until the cuspid occupied its normal position outside the lower teeth. The left cuspid now presented in its normal position and required no further treatment, not even binding in place. The right cuspid when brought into line was much too long,—as had been anticipated,—owing to its great length as it stood in the palate. It had therefore been decided before operating to remove it entirely, fill the root from the apex, deepen the socket and replace. This was done while the patient was under chloroform. The cuspid when replaced occupied its normal position, much to the gratification of those who witnessed the operation. At the writing of this report, seven weeks after the operation, the teeth, which have had no retaining appliance whatever, and have given no inconvenience in mastication, are well attached in their normal position, the pulp in the left cuspid being alive and healthy. The thick wall of the alveolus which was moved forward with the teeth, is partially absorbed and will soon,

as in other cases regulated in this way, present an even gum line.*

DR. AGUILAR, Cadiz, who saw Dr. Bryan operate at Chicago, presented a model of a forceps for operating by this method.

DR. LUCE presented a method of securing a cervical clamp when the cavity extends under the gum. The rubber dam having been brought well to place between the teeth, the interior of a cervical clamp (White's 73) is filled with red gutta percha, the tooth dried, the dam drawn up until gum and cavity are exposed, when the clamp, with the gutta percha heated to stickiness, is correctly applied and held firmly until the material is hard. This will hold the dam as high as one chooses to place it, care being taken to have the hole in the dam neither too large nor too small.

DR. CLUDIUS, Grenoble, exhibited some models by Dr. Herbst of Bremen, to illustrate that practitioner's method of making certain pieces of bridge-work fit the natural teeth closely by burnishing pure gold or platinum upon them and flowing upon it fourteen carat solder.

DR. MITCHELL: "The chief claim for this work of Dr. Herbst, kindly showed us by Dr. Cludius, is that it is quickly done and consequently cheap, and, it may be truly said, *nasty*. The work as presented has no redeeming feature; it is crude and slovenly constructed, with little consideration for mechanical principles and less for sanitary ones. We have in London many examples of such degradation in this class of work. Bridge-work should be a credit to the dentist, and I do not think that work such as this should in any way receive the endorsement of the Society. I would suggest that the piece of work shown by Dr. Spaulding be passed around with this in order that those interested may contrast them. Dr. Herbst's work shows how the thing is usually done; Dr. Spaulding's how *it should be done*."

DR. BRYAN: "Dr. Herbst's exhibit as I understand it, is more in the nature of providing us with methods for an emergency rather than attempting to show how it should be done in daily practice with skillful mechanics in our laboratories. It gives us quick methods which look cheap and crude, but has points that may help in an emergency."

*Several articles have appeared on this operation in European journals since Dr. Bryan published his method in the *Dental Review* in 1892. It has been discovered that a very similar operation was once performed in Paris in the last century, but no records of a later date have been found. Dr. Cunningham's paper, at the Columbian Dental Congress, on Dr. Bryan's operation will give modification of instruments and bring the subject more generally before the profession.

DR. THOMAS, Bilboa: "The cadmium in the solder will all burn out under the blow-pipe.

DRS. MONK, KELSEY, LUCE and others expressed an unfavorable opinion of this method.

DR. THOMAS recommended the use of jewelers' enamel to be flowed between the backing of porcelain and crowns, making an absolutely tight joint.

DR. MITCHELL, called attention to the fact that the different points of fusion of the enamel and porcelain forbade any actual combination, and questioned the durability of the joint.

DR. ELLIOTT, Florence, exhibited a model of a tooth set to replace one lost by pyorrhœa alveolaris. The porcelain was bevelled on the linguo-approximal edges so as to exactly occupy the vacant space and be prevented from slipping backwards, while to the backing, which was extended and stamped out to fit the



Elliott's Model's.

lingual surfaces of the adjoining teeth, including a little of the undercut, were attached elastic wings to grasp these teeth and hold them locked together with the porcelain tooth. The adjustment was very accurate, the tooth slipping readily into position where it was firmly retained.

PROF. AUGUST ETERNOD, who fills the chair of Histology at the University of Geneva, then gave, by invitation, a very interesting lecture on "The Law of Statistics in Hard and Soft Dental Tissues," which he illustrated by drawings, anatomical specimens, micro-photographs and ingenious apparatus.

DR. GUYE, Geneva, translated very ably for those who did not easily follow the professor in French. Owing to the nature of the demonstrations, requiring illustrations not to be procured, the lecture cannot be here reproduced in full. The Professor's originality, enthusiastic painstaking, and scientific ability received the warmest recognition.

TUESDAY AFTERNOON.

DR. A. V. ELLIOTT, Florence, Italy, read the following paper:

A FEW MORE WORDS ON PYORRHŒA.

In presenting this subject of *Pyorrhœa Alveolaris*, I wish to say at the outset that I am making no claim to original research. I have not gone into the etiology of the subject, nor into the close scientific hair-splitting questions which are all current today in regard to this puzzling and perverse disease. I have left this to men better qualified and equipped for such work, whose tastes, talents and enthusiasm give them a loving and caressing fondness for the habits and social life of the little microbe, who, as the poet has said, "Gets there all the same."

But without having gone into the deepest depths of the study of the pathology of the disease, I have had, in common with each of you, a good deal of practical experience with it,—enough to prove to me that there can be no hard and fast rule to apply to it. Usually when a case is presented to our notice the tooth has changed its position a little and is found to be more or less loose and sometimes elongated. The gum about the tooth is congested and unhealthy looking, and on taking a probe to explore it is found that more or less separation of the tooth from its attachment has taken place—usually more on one side than on the other—and that the process to greater or less degree is absent. Neuralgic pains are often associated with this condition of things—especially towards the latter stages—arising, no doubt, from the nerves in the roots having lost, through the progress of the disease, the natural protection of the gum and process—the root itself not being sufficient to protect the nerve from unusual thermal shock.

I deem it unnecessary in the presence of this audience to describe further this disease. What we want to know as practicing dentists is what is it, what is the cause, and how to cure it. Some of the best men in our profession are in open antagonism in regard to its origin, one set holding to the constitutional or systemic, the other to the local and limited. The constitutionalists agree that the disease, as we find it in the mouth, is but the expression of some fault or vice in the blood such as uric acid, scurvy, struma, etc. The uric acid or gout theory is very plausible in spite of the fact that for many years gout has been made the scapegoat of obscure diseases in general, and has been generally used as a convenience to cover up ignorance on the part of the diagnosticians.

In justice to Prof. Pierce, however, in this connection we must admit that his conclusions have been arrived at after a careful and scientific examination of the subject, and deserves our serious attention. It may be, and very probably is, the case that vitiated blood has more or less to do with the disease—whether primarily or secondarily is the question,—whether or not the disease has its origin in the blood. We, as dentists, have to devote our principal energies to the local conditions. They require the most careful attention, both mechanical and chemical, to insure any promise of amelioration.

What makes the disease so perplexing is the apparent perverseness of it—so contradictory. The “Eureka” of yesterday gives place to the discouragement of today. Rheumatic and non rheumatic, gouty and non gouty, strong and healthy, weak and anemic,—the only exception to this omnibus of conditions is age, we don't often find it in the young. Before Riggs' time there was not that close study into the pathology of the human jaw, we are favored with in these days of dental conventions. Our occupation was then more mechanical than professional and some even now, I am sorry to say, seem to consider it so.

It is easy to call the attention to the fact that the ancient and primitive men had perfect teeth, and so all things considered they should have had, but what proof have we of the fact. As far as my observations has taught me there seems not to be so much difference as the changed conditions of living would warrant. I have studied the jaws of the ancient Egyptians at the museums in Cairo, the lake dwellers here in Switzerland, the ancient Romans at Pompeii, and in the Catacombs; the ancient Britons, the mound dwellers at Harvard University, the Etruscans in Italy; and but recently had the pleasure of seeing, through the courtesy and guidance of my friend Dr. Dunn, of Florence, a skull whose age it is impossible to estimate. It was so well preserved by the process of petrification that on removing a portion of that which was formerly the skull, the petrified dura mater showing the convolutions of the brain and the superficial blood vessels were still to be seen.

Yet this most ancient of earth's inhabitants evidently suffered from tooth ache, evidenced by two badly decayed teeth and a root. This interesting skull is in the museum of San Gimignano, a walled and medieval city, situated among the mountains of Cen-

tral Italy. It was found several meters under the surface, in a strata of the tertiary period associated with disintegrated rock, fish shells, rubble, etc., the whole of which, although now over 1,000 meters above the sea level, was once under water and that for unknown ages.

Of the great number of ancient skulls which I have had the opportunity of examining I have invariably found a certain percentage among them bearing evidence of decay of the teeth, thus proving our remote ancestors were not so very different from ourselves as regards immunity from diseases of the masticating organs. If we go still further back past the missing link, which at present divides us from the brute creation, we find that the gorilla and chimpanzee—our nearest relations the other side of that link—are better off than ourselves in this respect. So are these animals as we find them now. The gorilla has a magnificent set of teeth, including powerful cuspids and third molars.

One would suppose that in those earlier times referred to, when a less complicated civilization existed to weaken men, and especially when the survival of the fittest was in vogue—the weaklings having gone to the wall in early life,—that decay of the teeth would be almost impossible and the same in regard to the disease we are now considering. I am sorry not to be able to indicate definitely the ancient skulls which I have seen showing unmistakable evidence of the ravages of this disease.

In examining these ancient skulls referred to, I was then interested in the question of caries and alveolar abscess and neglected other matters. But in thus referring in general terms to decay of the teeth I wish to assume by analogy other lesions relating to the masticating organs as well, so as to emphasize the immutable law in Nature, namely, *a given set of conditions invariably produce a given result*. Everything in nature is but a problem in chemistry or mathematics. If we know all the figures of the proposition or the chemicals in the compound and had the ability we could solve the problem, or by qualitative and quantitative analysis get at the result. But in this, like other problems in nature, we need more data before we can arrive at the truth. A solution will come in good time. I have faith in the Millers and Huxleys of the future as well as in those of the present day.

In my opinion pyorrhoea alveolaris is but the result of a tendency in the original constitution acted upon and developed by fa-

avorable conditions. I have had this truth strongly impressed upon me by observing the relative difference there exists between people of the same race and condition in life, but living differently. Take for example the Italian peasants. Those of the country whose diet is simple, consisting of polenta and hard black bread with hardly any meat and no condiments, have good and strong teeth and healthy gums, while their relatives, those of the cities, many of them originally from the country, living under different sanitary and dietary conditions have usually disgusting mouths. Theirs is a mixed diet of poor quality, including in it all the extras they can afford. But even among those, all are not equally affected. Some have moderately clean mouths.

I think we will always find that those races which are blessed with good teeth and healthy gums live on a simple and natural diet. Even our Irish when they first land at Castle Garden, before they become the aldermen and mayors of our cities, have generally good white teeth. Their diet at home was simple enough, consisting mostly of potatoes and milk—and good fighters they are, too. The Arabs have also very good teeth. Their diet is likewise very simple.

I was recently told by a gentleman fresh from among the blacks of South Africa that the Zulu Kafirs there, the natives of the place, have in their native state strong and sound teeth, but that those who are brought into contact with the white man and his civilization are much worse off, and frequently resort to the white chemist and his forceps for relief.

There are two great principles we must recognize as potentialities in regard to the teeth and their environment,—the way people live and the care they bestow on their teeth. A bad way of living induces bad blood and impure secretions. This idea favors the constitutional side of the question, but it is true, nevertheless. Rich people and those most favored, to outward appearance, often do violence to nature both as to quality and quantity in what they eat. Nature will not suffer violence without revenging herself sooner or later.

A favoring condition in those predisposed is the neglect to give the teeth the exercise they require. Some teeth need more exercise than others. It would seem as if in the combination of teeth and jaw strong teeth were often placed in jaws too delicate for their proper support. The teeth are all right, but the

jaw is deficient. What is needed in such cases is to brace up the jaw by giving it plenty of exercise—gymnastics and massage. It is said our forefathers had larger jaws than we have. They probably ate tougher steak and had less delicate French cooking.

Even dogs, if fed on soft and rich food without the opportunity of exercising their teeth, tearing the meat from the bone, etc. will suffer in time with the ills the superior animal, man, has, generally speaking, the monopoly of.

It is a well known fact in medicinal science that the non-use of an organ weakens it and that giving it proper exercise strengthens it. An arm done up in a sling soon shrinks away and an arm at the blacksmith's anvil will develop great power. With myself I sometimes notice a tenderness in certain teeth when commencing to masticate with them after having given them a holiday for some time by chewing on the other side. Whenever I discover this tenderness I take the hint and work that side for all it is worth until the tenderness disappears. You know it is a common habit with us to use one arm more than the other—some people are almost blind in one eye without knowing it—from not using it.

Another factor in encouraging this disease is improper cleaning of the teeth and gums. A perfunctory, careless and slovenly method is almost as bad as total neglect. The gums about the neck of the teeth should have a thorough massage with the tooth brush. The ideal mouth, judging from an extended experience, is that of the average American young lady. In her mouth, the gums are firm and healthy, the teeth free from tartar and the breath sweet. She owes it all to her innate sense of refinement and her tooth brush. She may be a tooth brush crank but it pays her.

In regard to the treatment of and prognosis there are many cases presenting themselves which are hopeless—too far gone to attempt anything but alteration and with most of those the best remedy is the forceps.

There are others whose general appearance discourages any prolonged effort.

There are patients who never have the desire or patience to give the time demanded. After eliminating those we have a great variety to try our luck upon, from the doubtful to the hopeful, according to the stage of the disease and the patient's powers of cooperation.

The first and most important essential is scaling to remove all foreign adhesions, then a thorough washing out of the pockets and around the roots with peroxide of hydrogen—sometimes adding a little of the 1000 solution of the bichloride of mercury. After a little rest and rinsing out the mouth, the next application should be of the nature of a stimulant and I know of nothing better than a one in 10 solution of sulphuric acid with a few drops of the tincture of iodine added. This can be injected into the pocket or pockets under the free margin of the gums with a Donaldson bristle having a few shreds of cotton wrapped about it. This treatment might be changed sometimes and Robinson's remedy or something else substituted. The patient on leaving after the first visit should be instructed in the manner of using his brush, and as to the kind of brush. A prescription for a disinfecting mouth wash should be given him. The one I would give is Prof Miller's saccharin mixture, which should be used diluted. A formula for a simple and medicated tooth powder should also be given such as prepared chalk, orris root and chlorate of potash in equal parts. Besides which he must be instructed to rub the gums about the roots with the fingers, especially up and down, a sort of massage exercise strengthening the gums and tending to press out foreign matter from the pockets. And finally he should be encouraged to exercise the loose teeth as much as possible by chewing on them freely and persistently. Let him chew gum or anything else except tobacco, in which case the remedy would be worse than the disease. Like one's experience in gymnastics—at first the muscles are tender and easily fatigued, after awhile the exercise is a pleasure.

On my way here yesterday I passed a stone quarry. The size of the mallets used by the workmen were enormous—half an hour's work with one of them would use me up for a day.

In regard to the constitutional treatment my advice is to refer the client to the family physician. Proper treatment of the disease requires much co-operation from the patient.

DISCUSSION.

DR. BRYAN: "As a patient of Dr. Elliott's, I can subscribe to the efficacy of his treatment. I have two or three molars in the right superior maxillary, which periodically give me trouble as pyorrhoica patients. The first molar generally gets tender or loose

when I get away on vacation. Hotel fare, rich food with the usual half bottle of wine, want of regular exercise, bring on the symptoms; also when I 'get run down' from too much work at home. Generally a return to rational habits and plain diet shows an improvement in their condition, and a little stimulation with chloride of zinc or iodine or aromatic sulphuric acid will keep them in a useful state nine months of the year, my working year. Dr. Harlan, of Chicago, found this six-year molar in a condition in which Dr. Wetherbee, of Boston, had advised the cutting off of the buccal roots and extracting them. But the tooth has been saved to usefulness by drilling into the pulp chamber, killing the pulp and filling the root. It has given me less trouble since. There was great recession of the gums, nearly exposing the apex of the palatal root. Last winter at Florence, Dr. Elliott found a swelling and pus near the point of the root of one of my lower incisors which apparently had no connection with the pulp, which was healthy, nor with the exterior as a pocket infected from without. I am inclined to think that we often overlook cases of pyorrhœa, ascribing them to some other cause. Lancing and stimulating quickly restored this tooth to usefulness. This class of cases has lately been described by Prof. Black, and classified as a distinct form of pyorrhœa."

DR. DUBOUCHET, Paris: "Leaving aside those cases which are produced to a certain extent by deposits of tartar, I would call attention to those resulting from systemic causes. If time permitted, I might make profitable quotations from all the able papers of Dr. Pierce. My own treatment is as follows: At the first sitting, remove the tartar as thoroughly as possible, then syringe with tepid water, driving out all *debris*, and free pus if there be any. Press with the finger upon the gums in order to expel more completely any that remains. Then with a platina probe-pointed nozzle upon my hypodermic syringe I inject peroxide of hydrogen into the sockets. The next day I make the same injections, followed by an additional injection of aromatic sulphuric acid, continuing this treatment every other day as long as necessary to effect a cessation of the pyorrhœa. Within the past three years I have made the following addition for obstinate cases, which are considered as more marked manifestations of the uric acid diathesis: I prohibit all alcoholic drinks and advise a *regime* of *sweet* cider. As many know, the systematic action

of the malic acid is to transform the uric acid into hippuric acid which has not the inconveniences of the former. Under this treatment and *regime* I have obtained a number of vastly improved cases, as well as some apparently cured. I say apparently, because there is a tendency after a time to recurrence of the malady in many instances. I should not forget to mention that mild dentrifices, easily dissolved in the saliva, are used by my patients as well as the systematic brushing of the gums with a soft bristle-brush (such as shaving brushes are made of). I also recommend an astringent wash and frequent pressure upon the gums."

DR. THOMAS: "Sumac, which is obtained from a plant that grows in Spain, is useful in pyorrhoea; I find that the gum recedes and the teeth get firmer after its use."

DR. ELLIOTT presented a paper by Dr. Chas. W. Dunn, of Florence on

ARTIFICIAL DENTISTRY AMONG THE ETRUSCANS.

By CHARLES W. DUNN, L. D. S., FLORENCE, ITALY.

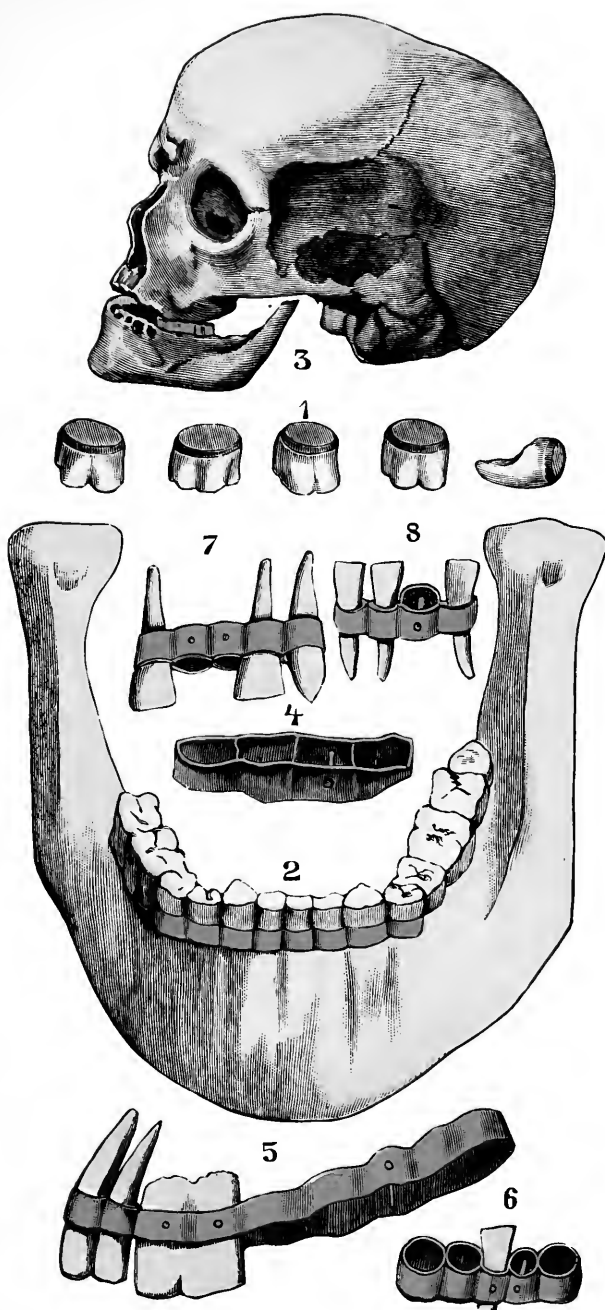
Proofs that the art of Dentistry was practiced by the Etruscans, have been found at different places, and that they had arrived at considerable skill, is very evident.

In the Etruscan Museum in Florence there are the crowns of eleven teeth, one canine and ten molars; they are completely hollowed out (the enamel only remaining, and this is perfect); not a particle of the dentine, excepting in two, has been left. They appear as if they had been prepared to crown broken teeth or roots; they are greenish in color as if they had been in contact with bronze.

In Florence, in the writer's possession, there exists an Etruscan skull, in the under jaw of which a gold band or ribbon has been interlaced in and about the incisors, embracing the canines and bicuspid. This probably was done for the purpose of supporting some of the teeth when they had been loosened.

At Marzabotto, near Bologna, in the collection of Count Pompeo Aria, there is a deciduous incisor tooth mounted exquisitely in gold; in this there is a loop, through which a cord was passed, so that it could be worn as an ornament.

An artificial tooth attached by gold wire was found in an Etruscan skull at Marzabotto also. This skull was sent with other



100-100

Etruscan objects to a foreign scientific society, but it was never returned to Count Aria.

In the National Museum at Rome, at the Villa Giulia, there is an Etruscan skull which has a small denture in gold. There is a space which probably held a false tooth; the rivet passing from side to side would indicate that the tooth was held there in place by it.

At Corneto, an Etruscan city some forty miles from Rome, in the two museums existing there, are four specimens of Etruscan dentures carrying artificial teeth, three for the upper jaw and one for the lower.

They all are made with bands, without any palate, and resemble the bridge work of these days.

The principal one is an upper denture in gold, with eight apertures or rings. Five of these passed around teeth which were standing during the life of the person who wore them.

Two of these, the right upper canine and the right upper lateral, are still remaining in their rings or bands.

These bands extend from the right upper canine to the first left upper molar.

The two front upper incisors and the first upper left bicuspid were false teeth.

Owing to the incrustation of "tufo," earth, tartar, or probably all combined, about the two front upper incisors, and especially on their base or on that part of it which rested on the gum, it was very difficult to judge of what they were composed.

They apparently were carved out of one piece of material.

It may be stone, pottery, a fish's tooth, or a piece of enamel of a large animal's tooth.

They do not seem to be human teeth.

The form has been given somewhat roughly.

They were riveted from front to back with two rivets into the gold ring around them.

The ring which had served to occupy the space of the left upper bicuspid had evidently supported a false tooth. This had disappeared, but the rivet of gold wire which passes from front to back shows evidently what purpose it had served.

The piece terminates with a ring which encircled the first left upper molar.

It is evident that one of the bicuspid had been lost during the life of the individual, for some time before the denture had been made. The space had closed up.

The denture is of very excellent gold; it is probably nearly pure in quality, rather thick, and made strongly. The workmanship is very good, and the plate has been carefully and nicely finished; no file marks are apparent, all is smooth and artistically done.

The rings or bands are joined by solder, a solder so good that its color, even after it has been underground for so many centuries, probably twenty-five or thirty, is equal to that of the other parts of the plate. Even with a good lens it is impossible to detect any difference of color or any flaw of any description.

In the Stanza Ottava, in the same Museum at Corneto, there is another gold denture for the under jaw. It was made to embrace five teeth; two of these were the false teeth, one of them an incisor; a human tooth is still in position. The other is missing. The gold rivets remain.

The tooth fixed with a rivet has its root filled quite short.

There are four divisions, and the soldering is here also exceedingly good.

The gold bands are thick and strong and appear to be almost pure.

In the Palazzo Bruschi, also at Corneto, there are two other dentures, one to hold two upper front false teeth with rings around three teeth, which served to hold and sustain them in the mouth. These three teeth are still inside the band or rings which held them during life.

The other denture has three teeth clasped and one empty space where the false tooth was attached.

It is made in gold bands with rivets of gold; the union of the different rings had been brought about by the same admirable soldering.

DR. THOMAS: "The Mayr Indians used to sear their decayed teeth with red hot instruments; and for pyorrhoea burned an herb inhaling the smoke to destroy infection."

DR. JENKINS: "I should doubt if they ever had pyorrhoea."

PROFESSOR VULLIET (Chair of Gynæcology, Geneva) gave a very instructive talk on Dermoid Cysts, of which the following is an extract:

"In its simplest form the dermoid cyst is composed of an envelope containing epithelial cells in which we find crystals of cholesterine, the whole having the consistence of granulated honey. In other forms we find hair with sebaceous glands and sometimes teeth. The teeth found in dermoid cysts are identical in structure with normal teeth, but not in arrangement. Sometimes the root is missing; sometimes they resemble in form the supernumerary teeth. As many as one hundred have been found in dermoid cysts located in the ovaries, but never more than twenty in other parts of the body.

Many theories have been advanced as to the etiology of these cysts. The theory most generally accepted is that, through some accident in foetal life, embryonic tissue capable of generating teeth and hair gets included in parts of the body other than those in which it belongs, and is developed later. These cysts are often malignant tumors. They develop very rapidly. Perfectly developed teeth have been found in new-born children."

A member having asked if teeth in cysts could be subject to decay, the professor replied that possibly they might, as microbes could be conveyed through the circulation. Another question was to the effect, Is the appearance of teeth in cysts accompanied by their non-appearance in the mouth? Answered in the negative. The professor exhibited two specimens of dermoid cysts, one having three teeth in a piece of alveolar process.

The hearty thanks of the Society for Prof. Vulliet's interesting discourse was indicated by a unanimous rising vote.

DR. WETZEL reported a curious case of cyst containing a piece of the parietal bone and a number of incisor teeth.

DR. MITCHELL: "Some years ago I shot a pigeon in which was a tumor containing the vertebræ of another pigeon."

WEDNESDAY FORENOON.

A paper prepared by DR. J. H. SPAULDING, Paris, was read by his brother, Dr. Spaulding, of Minneapolis.

TUBE-TEETH IN BRIDGE WORK.

BY DR. J. H. SPAULDING, PARIS.

You are all well aware that bridge work as most universally constructed even by our most skillful mechanics presents two glaring defects, viz:

1st. The danger of breaking off of the porcelain faces of molars and bicuspid especially and the difficulty,—I might almost say impossibility—of proper repair in such event.

2nd. The hideousness in appearance of such bridges which show an almost unbroken surface of gold on the masticating and lingual aspects.

In the use of the English Tube teeth I have succeeded in overcoming entirely both these defects.

While the very primitive and often grotesque forms in which these teeth are still manufactured leave much to be desired as to beauty and natural appearance I am of the opinion that they can, even with these defects, be advantageously employed in all literal bridges, i. e., in the replacement of one or more bicuspid or molars. If they were to be more generally used for this work I have no doubt the manufacturers would replace their old and ill-shaped molds by those having more reference to nature and beauty.

Take for instance a case commonly presenting: 1st. sup. molar very badly decayed and requiring a crown; second bicuspid gone; first bicuspid root only remaining.

This represents a simple bridge of one tooth which can be extended as circumstances demand, after suitable preparation of the roots. Make cap and pin for molar and bicuspid in the usual way, place these on the roots, take impression and make model. Next select tube molar and two tube bicuspids. Those which are to be attached to the caps and pins already prepared are ground to fill the cap but concaved on the side presenting towards the space to be filled (model shown). Over this end of each tooth so ground burnish thin pure gold plate, pierce a hole and push through plate and tube your platinum wire *size to fill the tube*. Remove tooth and fix with 22 K solder. Replace tooth in position and burnish gold more carefully and trim off excess (see sample tooth prepared). For convenience in description we will call this the base. The tooth with its base is now placed in position on cap and held with wax, the tooth slipped off and the base and cap united by the wax are invested for soldering. Boil out wax and solder with 20 karat solder. The tooth which forms the bridge, i. e., fills the space between these two crowns of attachment, is ground so as to leave the very necessary self-cleansing space thus, the base made in the same manner as above described. Now fill the concavity in this base with 20 K solder (see sample tooth

prepared.) Next slip the teeth into place and adjust the bridge as desired and wax all together. When this is done lift the bridge off the model, slip off the teeth and invest for final soldering. Please observe that at no time do you keep the tooth or teeth in place while soldering, which is a great advantage. Much less gold and solder are used than in the ordinary method, which is an economy of great importance and almost none is presented to view when the bridge is in place.

The next step of polishing the gold part of your bridge is to attach the teeth, which can be done either with cement or with sulphur. In the latter case the bridge and teeth are warmed and melted sulphur placed around the pin and base which receive the tooth. After a little practice this is very easy. You will have perceived without my insisting that the *two great advantages* which I claim for this manner of constructing bridge pieces are perfectly accomplished.

If at any subsequent time a tooth breaks you have only to select another, grind it to fit and fix it with cement. Can any repair be more simple? But this is totally necessary, as these tube teeth are very strong and do not readily break. I am using these exclusively for bicuspid crowns and claim for them a more perfect adjustment to the surface of the root than can be had with any other tooth besides simplicity in preparation.

I will try and briefly describe it. Your bicuspid root is ground even with the gum or as nearly so as possible, or convexed, if you prefer. They are more often rendered very irregular by decay so that you have a very uneven surface. Pure gold plate is burnished to this surface and with the mallet and proper instruments made to enter all irregularities. A hole is punched in this plate and your pivot driven through into the canal previously prepared. Plate and pin are united with solder and the plate trimmed to correspond *exactly* with the size of the surface of the tooth. The tooth is ground and the *base* made and soldered to the plate and pin exactly as described for the bridge.

I have been using tube teeth exclusively for most crowns and all bridges for about two years and a half, and as it was an original idea with me I have thought best to test it well before bringing it to the notice of my confreres. Last year, however, an article was read before the Columbian Dental Congress at

Chicago, touching upon this subject, but the methods therein described seemed to me to be too complicated. The conclusions are, after a somewhat extended use of the tube tooth, that they are very advantageous, because

1st. They are the strongest teeth.

2d. That either for plates or bridges they admit of easy, *very* easy repair in the rare cases where this is necessary.

3d. They can be ground and polished according to the artistic demands of the case without injuring their appearance.

4th. They are very easily adjusted and no soldering is done with the teeth in place.

5th. A great economy of gold and solder is made.

These teeth must be used to be appreciated; they have gone out of fashion because they are not American, driven out by popular prejudice, aided by their unnatural, often hideous, shapes. Let us use them more and demand that the manufacturers give us the same teeth in newer and more natural molds made according to nature. If their use ever becomes general under these conditions the pin-tooth will have had its day.

DISCUSSION.

DR. MITCHELL: "Nine years since I suggested the use of tube teeth for pivots. In soldering the pins to the plate for tube teeth the plate should be countersunk slightly on both sides, and a minimum amount of solder used; otherwise it flushes up to the base of the pin and hinders the letting down of the tooth. I find that dental alloy pins are stiffer than gold. German silver is as good for pivots, screws, etc., for all practical purposes, as gold, platina, iridized platina, or dental alloy. If there be not too much zinc in it, it is really stronger than any of them. Its oxidizing point is very low, the copper and nickel of which it should be composed, favoring this great qualification."

The discussion was continued by DR. FRED'K YOUNG, Cannes, and others until it was time for the business meeting, which concluded the official proceedings.

Of the social features of the occasion, some of which were enlivened by the presence of dentists' wives,—the best in the world, as they have need to be,—of the banquet at which Consul Ridgely regaled us with the latest and best in song and story, of the perfect afternoon on Geneva's beautiful lake, and of another

lounge away on charming Saleve, only this hint is given, to excite the regret of those who "might have" come but unhappily staid away. Better luck to them next year!

OFFICERS FOR THE YEAR 1894-5.

President, Dr. Charles W. Jenkins, Zurich.

Vice-President, Dr. William Mitchell, London.

Treasurer, Dr. Charles J. Monk, Wiesbaden.

Secretary, Dr. J. H. Spaulding, Paris.

Executive Committee, Dr. C. W. Jenkins, Dr. G. C. Daboll and Dr. Arthur C. Hugenschmidt, Paris.

Membership Committee, Dr. W. Mitchell, Dr. L. C. Bryan, Basel, and Dr. Waldo E. Royce, Tunbridge Wells.

The next annual meeting will be held the first Monday in August at Boulogne, France.

CHAS. W. JENKINS,
Secretary.

COMPRESSED AIR.

Compressed air has lately come into use in the offices of a good many dentists, and after once becoming acquainted with its numerous virtues one would feel very much at a loss without it.

I am so much pleased with it that I want to tell my brother dentists about it. It can be utilized by dentists very generally, as any town large enough to have water works or an electric light plant can furnish the necessary power. The water pressure is the less expensive of the two, as a motor is necessary to the equipment by electricity. For the former a beer pump is obtained and attached to the cold water supply and the waste. This may be placed in the laboratory under the sink out of the way and be also connected with a thirty or forty gallon hot water boiler, such as is used at a kitchen range. This makes a reservoir of sufficient capacity to contain enough air to be used for a considerable length of time and in larger quantities than the pump would supply. The compressed air in combination with illuminating gas makes a beautiful flame for blow-pipe work, as the proportion of air and gas can be so nicely adjusted. Then as a chip blower at the chair it does away with the old-fashioned kind. The only objection heretofore being that the air being compressed and of a lower temperature than the atmosphere makes its use quite uncomfortable in a sensitive tooth, but I am very happy to be able to say that that objection has been done away with, as now I can heat the air to any temperature desired by electricity, and no matter if the air pressure is as high as sixty pounds it can be heated just as nicely as if the pressure were but five pounds.

Besides this, there are so many purposes for which this compressed air is useful that I advise everybody who can, to have it, as it is really an invaluable adjunct in the operating room and laboratory.

I might add that to the same wire that furnishes electricity to heat the air, I have an electric mouth lamp and a root dryer attached.

A. W. MCCANDLESS, Chicago.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

CURIOUS, ISN'T IT?

The Illinois State Board of Health has decided that a graduate of a school of pharmacy, veterinary science or dentistry is not entitled to one year's standing in a medical college. In other words, if a graduate of any such school applied to a medical college for admission he would have to enter as a freshman.

Now, let us see how it works. The American Medical Association is open to a graduate of any reputable dental school, who first applies to a local medical society for admittance. There is an incongruity somewhere; either the state Board of Health is acting erroneously, or the American Medical Association is better qualified to judge of the qualifications of its members than the Board of Health. In discussing the question the editor of the official organ of the A. M. A. says: "Such sweeping rejections should lead to organizations of the better (*sic*) classes of these schools similar to the American Medical College Association." The National Association of Dental Faculties has been in existence since 1884!

Right here in Chicago there are at least three dental schools giving courses in anatomy, chemistry, histology, physiology and materia medica, exactly identical and equivalent to the same course in every medical school in the city. To say that such graduates are not entitled to an advanced standing of one year in a medical school is to reopen the question about the recognition of dentistry as an independent profession or as a specialty of medicine. We hope that the authorities will not take such a backward step, but give credit to those entitled to it.

A dental student who spends three years in acquiring a dental education should not be required to go over again the first year's studies in fundamentals to satisfy a blunder made by a state board of health in Illinois or elsewhere. The M. R. C. V. S. is as highly respected in England, from the educational standpoint, as the M. R. C. S. or L. D. S. In each case the time spent is the same, but the final work in the third and fourth years varies according to the degree sought for by the applicant.

TO LEGISLATE.

Boiled down, the object of legislation is to protect the public from imposition and malpractice. By the enactment of laws governing the practice of dental surgery the profession is given a definite standing. The ones who attend to the enforcement of laws ought to have compensation, and power to force obedience to legislative enactment. In order to place all on an equality who desire to enter practice a minimum of requirements should be formulated which could be lived up to by the applicant before presenting himself for such an honor.

If a graduate of a dental school is to be recognized by a board of examiners the methods of the school ought to be open to inspection and examination at any time. If anyone can come before a board for examination, a limit of at least three years practical work ought to be exacted before such an application should be entertained. A State board should not grant a degree for obvious reasons. If you have any views on legislation let's have them.

DIGEST. PREPARE. COMMENT.

The word digest, for the uses of this journal, has not as yet been fully classified; that is to say, we have not decided whether it will cover only the usual definition or not. Webster says: To distribute or arrange methodically; to work over and classify; to reduce to portions for ready use or application; to prepare; as to *digest* the laws, etc. That which is digested, especially that which is worked over, classified and arranged; a body of laws; a

summary; an abridgement, as Comyn's *Digest*. At present we will not determine the question. To simply digest an article, without review or comment may seem tame, vapid and uninteresting. To digest and comment in a friendly or critical manner may enhance the value of a contribution. To digest and criticise and offer something for that which is digested, may not be to the liking of authors, it may seem captious and may be impertinent. We would not dare, as did Pendennis, the reviewing of the Encyclopedia Britannica at an hour's notice, without digesting it. Until our staff settles down to work and some uniformity of style is guaranteed, we will not venture to predict just what *digest* means. Our shortcomings are many as yet, but we hope as the days go on, to fulfill our promise, "to furnish monthly, in a condensed form, a *digest* of the important matter in all dental periodicals," with appropriate suggestions, criticisms, warnings, comments, and withal conservative discrimination in selecting the matter to be digested.

Any friendly suggestions from our readers will be highly appreciated. Give us a sample of a digest of some article in the present issue, with or without comment or criticism.

THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES.

We had hoped that when this issue of the DIGEST went to press, the suit defended by the Protective Association, with the International Tooth Crown Company, in the State of New York, on the Low Bridge Patent, would have been argued and in the hands of the judge for decision. This is the only suit that we have been able to make the Crown Company fight to the end, as they have either run from us in every other court in the United States, or we have beaten them.

Notice was served on us to appear before Judge Wheeler in the Federal Court in Brooklyn, February 5th. We answered this notice and waited all the week, but owing to a press of other cases, and to the ending of the term of court, our case was indefinitely postponed.

This suit is of great interest because two principal questions are involved; first, the validity of the Low Bridge Patent; second

whether the Crown Company have sufficient title to the patent to issue licenses or bring suit against members of the profession. If the court should decide that the Company have not sufficient title, it would either end this litigation, or compel them to begin all over again. At all events, the case will come up for a final hearing in the near future.

There are many matters relating to this and other suits of especial interest to the members of the Association and to the profession that require mention, but as we have just returned from New York, and as the journal must go to press, they will have to be deferred till the next issue.

J. N. CROUSE, Chairman.

Letters.

LETTER FROM LONDON.

IMPACTED THIRD MOLAR.

To the Editor of the Dental Digest:

DEAR SIR.—If you will allow me a little space in your journal I shall be pleased to place before your readers a comparatively easy method of successfully contending with what not unfrequently proves a difficult and anxious operation. The patient, a young lady, aged about 20 years, well nourished, and a perfect specimen of early womanhood, presented herself for advice as to a badly impacted third right inferior molar, which had caused considerable trouble, at intervals, during its attempted eruption; examination revealed the fact that no ordinary case of impaction presented itself, the superabundant gum tissue was somewhat swollen, very hard and tense, instrumentation showed the anterior cusps to be in very close apposition to the distal root of the second molar, while the distal surface of the offending tooth was barely on a line with the gum margin of the second molar, which I would add was a finely developed tooth and perfectly sound, in fact the entire denture (except the third molar spoken of) was as well nigh perfect as regards soundness and development as possible—hence the desirability of saving this tooth intact. Extraction of the third molar was decided upon; but the question that presented itself was, how to do so? With only the sacrifice, or mutilation of the second molar as a precedent in such cases I decided upon the fol-

lowing plan: After applying cocain to the gum I cut it away so as to expose the tooth as much as possible, packing the opening thus made with cotton previously saturated with sandarach varnish; this was removed later, and replaced by pink gutta percha. As the patient had to make a visit in the country, several weeks elapsed ere I was able to proceed further with the case. Upon the return of the patient I removed the plug, drilled into the most easily accessible part of the tooth and made an arsenic dressing; in twenty-four hours I was able to start with diamond discs to amputate the anterior cusps. I soon found the diameter of my discs ($\frac{7}{8}$ inch) was insufficient to accomplish the desired object, so deep down back of the second molar was the tooth operated upon. I found it necessary to have some German fissure burs, $1\frac{3}{8}$ inches long, made. These were used in the right angle hand piece to complete what was attempted with the discs. After nearly an hour's careful work, I was enabled to pick out the piece I had cut off, which represented an angular piece including one-half the grinding surface of the tooth, extending antero-obliquely to below the enamel on the anterior approximal surface.

The apparently long time devoted to cutting off the piece referred to will be accounted for by the proximity to and necessary avoidance of the important structures at their entrance to the inferior dental canal.

At a subsequent sitting the patient was anæsthetized with nitrous oxide, supplemented with ether, lest the extraction should necessitate more time than the gas narcosis would permit of. The space gained, well permitted the extraction of the tooth, the operation, owing to the preliminary precautions taken, resolved itself into an ordinary case.

The effectual saving of the second molar intact, and not knowing of a precedent for such an operation, is my only apology for encroaching upon your space.

W. MITCHELL, D. D. S.

39 Upper Brook St., London, W.

IMMEDIATE ROOT FILLING.

To the Editor of the Dental Digest:

DEAR SIR.—I will now comply with your request and give a report on result of immediate canal filling by Dr. ——— at a clinic. The tooth began to get sore and tender to the least touch about three

hours after the canal was filled. I left on an eight o'clock train that evening for home. You will understand my state of mind better when I tell you that we discussed the horrors of the inquisition, the burning of Michael Servitus at the stake and the destruction of the Midianites, men, women, children, oxen, camels, and asses. So you see I was furious when I arrived at home at ten or eleven o'clock. I went direct to my office painted gums with aconite and iodine, kept that up until next afternoon, when inflammation began to subside and in two or three days I was comfortable. I attempted to have it filled with gold at the expiration of ten days, but the excavation caused soreness, so I had it filled with cement. The tooth is never free from tenderness. If it gives any more trouble I will either call on you or Dr. ———.

I am yours truly,

B.

Bibliographical and Selections.

DIGESTS.

The Dental Practitioner for January contains a number of interesting contributions, one of which is a paper by W. W. Belcher on "The Relation of Nitrous Oxide and Asphyxia." The writer thinks that Nitrous Oxide is a true Asphyxiant, and in proof cites a number of experiments made upon himself; one of which is to turn a small amount of gas into a gasometer, breathe the same, until it is consumed, and then to breathe into the gasometer, using the same air over and over, when it will be found there is no interruption to the anæsthesia, and the symptoms will remain the same. He also gives a description of the sensation of Narcosis, as insensibility comes on from the action of the gas, and in closing quotes the following lines as a warning to those administering an anæsthetic:

"Sleep and death are twins of winged race,
Of matchless swiftness, but of silent pace."

"Rubefacients and Vesicants," is the subject of a paper by A. W. Harlan, which is well worth reading, as often one of the few hints contained in this paper, if followed, will save the operator much trouble, and the patient considerable suffering.

A paper by W.W. Coon on the subject of "Hypodermic Medication," is very interesting. The essayist recommends the use of the hypodermic syringe, as it has a wide range of usefulness in the hands of the progressive dentist.

The drugs recommended for use are: caffein, strychnine, nitroglycerine, (or glonoin), ergot, morphine, cocaine, atropine, apomorphine, and hyoscyamin. There are many instances in a large practice, where the "needle" will prove of great benefit, and for that reason every dentist should be familiar with the use of it.

H. M. Fish has a paper, the subject of which is, "Why not Have County Societies?" It is a plea for the organization of a society in every county, which shall include the majority, if not all, of the practicing dentists of that locality. The writer believes there is strength in unity, and that if more of the profession at large were brought within the society circle there would be less unethical practice.

The following subject is one of three papers, which taken together, form a corollary. The first paper is on "The Preparation of Cavities for Gold Filling," by F. E. Howard. In it the writer explains the preparation of cavities in different stages of decay, which is of interest mainly to the young practitioner.

Edwin Day Downs writes the second paper, which is very interesting, on "Choice of Filling Materials, and Methods of Use." There are a number of good thoughts presented by the writer, one of which is the selection of material for filling children's teeth. The thoughtful dentist must realize the responsibility he assumes in the case of the teeth of young patients, and, as the writer says, "on his treatment there may rest the future health, appearance, and well being of the man or woman." He also gives good advice when he says: "Treat the little children as you would have other men treat yours."

"Finishing Fillings", is the subject of the paper which completes the circle composed of the two preceding. The writer, Frank B. Darby, says: "There is no doubt but that the average dentist knows *how* to properly finish all fillings; but does he *do* it?" When it is understood that in proportion as a filling is finished, everything being equal, the longer its durability, the lack of a little more time, or labor, should not be allowed to mar its permanency. The paper contains many practical hints, and as the writer remarks, the subject was "threadbare years ago," still it is worthy of much consideration.

There is a Reportorial Review of the Twenty-sixth annual meeting of the Fifth, Sixth, Seventh, and Eighth District Dental Societies of New York. The article reviews the meeting in general, as well as the papers that were read.

The Quarterly Circular for December, published by C. Ash & Sons, contains a paper on "The Treatment of Anomalous Positions of the Teeth," by Dr. Warnekros, of Berlin. The writer describes a method he uses for moving one or more teeth, either labially or lingually, with the aid of a rubber plate and a piano wire spring. To one end of the spring is a small vulcanized rubber pad, which rests against the root, and the other end is imbedded in the plate; if it is desired to move the entire tooth, two springs are used, one resting against the root, the other against the crown. The method is similar to that of the Coffin plate, but can be adapted to a larger number of cases. The paper is profusely illustrated with cuts showing the manner of using.

Mlle. Henriette van Gelderen, of Amsterdam, has a short article on "Imperfect Occlusion of the Jaws." She cites the case of a young patient, where there was more than a centimetre between the superior and inferior incisors, when closed, due to the abnormal position of the coronoid apophysis. This was remedied by the extraction of the first superior molars, after which a cap, partly covering the head, and another adapted to the chin, the two connected by rubber bands at the sides, were worn for eighteen months, at the end of which time the jaws were brought together, and the teeth then moved into place by a regulating appliance.

Dr. S. Bauer, of Budapest, tells in a paper on "Argentum Nitricum," the good qualities of silver nitrate on softened dentine of deciduous teeth, and also in hypersensitiveness from erosion or decay. The writer tells how to use it in the treatment of teeth affected with pulpitis acuta septica. The objection to this, is that it leaves the tooth very much discolored, and would not answer for any case anterior to the molars.

The Dominion Dental Journal for December has only one original paper, "Pulp Canal Filling," by Dr. M. G. McEllimney, of Ottawa, Canada. The author makes a plea for thorough preparation of root canals, gives instruction in the making of piano-wire broaches and then says he fills roots with silver. He is not particular about moisture being present, rather prefers to have the root filled with a liquid medicinal agent, and forces silver (?) to

the apex with a blunt-ended steel probe. In cases of chronic alveolar abscess he fills the roots with gutta percha and chloroform in the usual way.

The British Journal of Dental Science for January has a continuation of Mr. E. W. Roughton's paper on "General Pathology and Surgery for Dentists." As the paper is copyrighted we cannot make any extracts from it. Mr. Harry Rose, L. D. S., has a paper on "Dental Mechanics," which is also copyrighted. Each of the above papers are good, substantial reading, and both are parts of a series on the same subjects.

A paper on "Abscess in the Antrum," by Mr. F. A. Maskell, treats of the causes of abscess, the diagnosis and treatment. It is orthodox, and as it is intended for the use of dental students, it is unnecessary to epitomize it. The leader is devoted to the extraordinary position taken by the *Pall Mall Gazette* in criticising advertisers and offering them an opportunity to reply to such criticism. As the conditions surrounding the practice of dental surgery in Britain so differ from those in the United States we cannot say more than this: The agitation will acquaint the public with the claims of dentistry to public recognition and support—legitimate dentistry most of all. One of the correspondents of the paper—a physician—went so far as to say that a medical man should first be consulted as to the needs of attention to the teeth, and that a medical man was best qualified to recommend a dental surgeon to a layman. The editor does not agree with this view. Taken as a whole, the "leader" is somewhat ironical as to the benefit to the dentists of lay meddling in dental affairs.

A report of the meeting of the Odontological Society of Great Britain disclosed that a new alloy, "nuriu," was presented by Mr. Geo. Brunton, and Mr. C. S. Tomes showed several slides of vasodentine from the hake and other fishes. Mr. Mummery exhibited several sections from human teeth with iron and tannin impregnations; Mr. Hopewell Smith, section from a round-cell sarcoma in connection with the peridental membrane of upper molars.

The other proceedings were devoted to the exhibition of new methods of taking impressions, and Dr. Joseph Walker exhibited an electric mouth mirror to prevent condensation on the surface of the glass when introduced in the mouth. The whole number is rather interesting and quite valuable to the general reader.

In the January number of the *Items of Interest* the first article is on

PORCELAIN DENTAL ART,

by Dr. W. A. Capon, of Philadelphia. He seems more enthusiastic and meets with better success than appears to be the case with the Chicago gentlemen who discussed the same topic before the Chicago Dental Society he admits, however, that making porcelain fillings is the most difficult, in fact more difficult than any other filling in use. He describes the usual method of taking impressions, fitting, etc., and then speaking of the cement used, says: "After removing excess cement, hot air should be applied, and the operation finished by covering the whole work with paraffin, wax, chloro-percha, sandarac or rubber varnish, leaving trimming till a later sitting when the cement will be thoroughly hard."

Then follows a report of the Southern and American Dental Associations. Dr. Geo. H. Chance, of Portland, Ore., speaks of the relationship between

DENTISTRY AND MEDICINE.

He says: "Dentistry, like general medicine, is here to stay; both are needed, and both are without doubt intended as instruments in the hands of the properly educated for the relief of physical suffering; and so far as scientifically educated, limited human foresight can go, are also intended to be used for the prevention of disease."

The remaining articles in this issue have appeared in other journals.

The American Journal of Dental Science for January contains an article on Dental Education, by Dr. R. B. Weiser, quoted from the proceedings of the Colorado State Dental Society. He says regarding the earliest history of dental laws:

"England had a law that had some reference to dentistry—or rather to the extraction of teeth—enacted in the thirty-seventh year of the reign of Henry VIII. By the third section of this act, any one who uses barbery or shaving in the city of London—its suburbs, and within a circuit of one mile—is forbidden occupying any surgery, letting of blood, or any other thing belonging to surgery, drawing of teeth only excepted. (Henry VIII was born in 1491; he began his reign when he was 18 years old,

which would be in 1509; consequently the thirty-second year of his reign would be 1541.) I am still of the opinion that the dental law of Alabama was the first genuine dental law in the world."

He then gives a synopsis of the dental laws of the various states and foreign countries, and refers to contemplated changes in the Colorado dental law.

In an article on

CALCIFICATION OF DENTAL PULPS.

Mr. A. Rose of Petersburg, Ont., says that, "A strong reason for deeming this peculiar formation of calcific matter in the pulp chamber physiological rather than pathological as to origin is the fact that the experience of almost every observer of this formation agrees in the statement that it is found most frequently in well-developed, well-nourished and usually plethoric individuals. I have often acted upon this assumption, and on discovering one, or perhaps two, of the canals of the superior molar closed to the finest broach, and having been attacked with caries which penetrated the tooth to the position of the pulp chamber originally, the tooth had, in the words of the patient, "just rotted away and never ached at all," I have cleaned the remaining root canals, if any, and after thoroughly antiseptizing with iodoform and eucalyptus oil, or aristol and eucalyptus oil, which is less disagreeable, or perhaps with bi-chlor. of mercury, 1 to 500 or 1 to 1,000, have dried and filled just I should have filled any ordinary case."

In the January number of the *Dental Headlight*, omitting the "Selections," we find among the original communications an article by Dr. W. J. Morrison, of Nashville, Tenn., on

EXTRACTING,

in which he states the following advice to be given to the prospective M. D. or D. D. S.: "They should be impressed with the function of the teeth, in the proper mastication and insalivation of the food; for the first and most important step in digestion is the proper insalivation and preparation of the food for the gastric juices. Students should be taught that the extraction of one tooth is the functional loss of two.

Then, attention should be called to the vital necessity of the remaining of the teeth to preserve the dental arch intact, by illustrating the tipping forward of the other teeth, and also the inter-

ruption of the flow of saliva. Another important point is the effect that the extraction of certain teeth will have upon the formation of the maxillary, not only as regards the individual, but also the effect upon the future generation."

In presenting digests of the different dental journals it becomes necessary to omit notice of matter, which, although good in itself has appeared elsewhere, otherwise repetition and confusion will be the result. In the January number of the *Southern Dental Journal and Luminary*, the only article which has not previously seen the light of day is one by Dr. I. N. Carr, of Taboro, N. C., on the preparation of

PYROZONE.

In opening the tubes he suggests for the avoidance of explosions that before opening the tube it should be placed on a block of ice for a few minutes and held in a napkin while the end is being ground off. Transfer unused amount to a ground-stoppered bottle, first coating the stopper with vaseline, then pour melted paraffin over it.

The Dental and Surgical Microcosm is a quarterly publication devoted principally to the subject of anæsthesia. Its January number fiercely attacks the action of the American Dental Association for celebrating the discovery of anæsthesia and giving credit to Horace Wells. It also contains an able article on the "Psychological Aspect of Hypnosis," by Dr. Wm. Romaine Newbold, of Philadelphia, and comments upon the new face-pieces suggested at the Dental Congress by Dr. Fillebrown, of Boston. In an original article on "Anæsthetics and True Anæsthesia," the editor gives the credit of discovery to some one who lived before the time of Herodotus and as near as it is possible to determine the credit for the discovery of the anæsthetic properties of nitrous oxide is given to Sir Humphry Davy.

The *Zahnärztliches Wochenblatt*, of January 19, contains an article on third dentition by Dr. Albert H. Mebes, of Berlin, Germany. He takes up the subject by quoting a number of German authorities on this point, and asks the question whether it is possible to prove that cases of third dentition are ever actually true and indisputable. He finally describes a case, which he presents to the readers of the paper with considerable pride.

The case in question was first published in the *Dental Review* of

August, 1894, and appeared to us at the time not sufficiently authentic to warrant the editorial notice it received. Dentists are frequently the originators of the most ridiculous statements. These are taken up by the laity, because some dentist is the father of them, and are circulated from mouth to mouth. The non-saving of children's teeth, the general neglect of the permanent third molar, the refusal to have roots extracted while in an abscessed condition, and many other similar fallacies have their origin in the brain of some dentist who is endowed with a vivid imagination or lacks education. With all due respect to the gentleman from West Plains, Mo., the case of third dentition described by him is not at all authentic. Almost everyone has seen the eruption of retarded or supernumerary teeth, nor can everyone be absolutely positive as to the extraction of all teeth or roots of teeth. The following are the only conditions under which a case of third dentition can be considered beyond dispute:

1. Positive proof that the individual has erupted and shed twenty temporary teeth.

2. Positive proof that the same individual has erupted thirty-two permanent teeth, and that the same number of teeth, each with its usual complement of roots, have been removed from the mouth.

3. The appearance at a later period of one or more teeth, whose anatomical characteristics place them out of the range of supernumeraries.

In the January number of the *Ohio Dental Journal*, Dr. L. E. Custer of Dayton, Ohio, describes an

ELECTRICAL FURNACE

for the fusion of porcelain, his own invention. This is, without doubt, one of the most important dental inventions of the last decade. The discussion following this paper shows that the members of the Ohio State Dental Society duly appreciate the subject. A committee was finally appointed to procure a suitable medal to be presented to Dr. Custer as a testimonial of appreciation for the valuable appliance invented by him. Dr. L. P. Bethel of Kent, Ohio, read a paper before the same society, relating some experimental tests with

STERILIZING AGENTS,

principally looking toward finding some suitable chemical agent for sterilizing instruments. Formalin, sodium peroxide and

electrozone are recommended not only for that purpose, but also for sterilization in pathological cases. An article by Dr. Henry Barnes of Cleveland, Ohio, on

SEPARATORS,

in which the invention of Dr. Perry of New York receives the highest praise. It also appears in this issue.

In the *Dominion Dental Journal* for January, Dr. Relyea gives the following formula for a remedy for

NEURALGIA.

Oil of peppermint.....	1 ounce.
Tr. of Aconite root.....	$\frac{1}{2}$ "
Chloroform.....	$\frac{1}{2}$ "
Alcohol.....	$\frac{1}{2}$ "

Apply externally with a camel's hair brush.

The *Odontographic Journal* for January contains an article by Dr. R. H. Hofheinz of Rochester, N. Y., on

BACTERIOLOGY AND DENTAL DECAY.

He presents a classification of bacteria, and names the following as the important causes assigned for the decay of the teeth:

1. Depraved juices accumulated in the teeth.
2. Disturbances of nutrition.
3. Inflammation.
4. Worms.
5. Putrefaction.
6. Chemical dissolution.
7. Parasitic theory.
8. Electrolytic decomposition.
9. Diverse Causes.
10. Chemico-parasitic influence.

The various theories are then gone over, with the following summing up:

"Dental decay is a chemico-parasitical process, consisting of two distinct stages:

1. Decalcification or softening of the tissue.
2. Dissolution of the softened mass.

Having mentioned the process of fermentation in the mouth, I may add that the acid is chiefly derived from particles of amylaceous and saccharine substances which lodge in the retain-

ing places; these undergo fermentation. The fermentation of carbohydrates produces chiefly lactic acid, and this is the chief destroyer of the tissue in its first stage. The second stage of caries, the dissolving of the softened dentine, is caused by bacteria."

The most noticeable feature of the January number of the *Dental Review* is the

VALEDICTORY OF THE EDITOR,

Dr. C. N. Johnson, who took the editorial management a year ago. Dr. Johnson's literary labors are too arduous to permit him to give the necessary time to the exacting duties of a dental editor, and, under these circumstances, he deserves credit for frankly stepping down and out. There seems, at present, to be no official head to the *Review*. An editorial on "Apathy in Dental Societies," by Dr. Geo. J. Dennis, one of the staff, is timely and to the point. He calls attention, among other matters, to the apathy of members, absence of interest in the work of the society, and the capability of the essayists. The leading original communication is by Dr. W. Xavier Sudduth, of the University of Minnesota, Minneapolis, and is entitled "The Present Scientific Status of

HYPNOTISM."

It is an able exposition of this phantom-like boon which is just now enjoying a truly western boom. Attention is called to the existence of the skepticism, which the preceding sentence almost discloses, and it is ably shown that opposition and antagonism met almost every step of progress in the advancement of science. The state of hypnotism is defined as simply a condition of "induced sleep," sweet, natural, uninjurious sleep, induced and prolonged. Statistics are ably quoted to show that hypnotism is not so uncommon a state as it is generally thought to be. At the next step the doctrine of suggestion is treated in a manner convincing to those who have not given the subject much attention, and it is shown how suggestion in many other human acts is an important factor. And if this suggestion is used for therapeutic purposes, we have "Suggestive Therapeutics." A large number of cases of cures of hystero-epilepsy, melancholic delirium, hysterical insanity, neuralgic pains, persistent rachialgia, arthralgia, partial left hemiplegia, and a host of others are cited,

from the pens of able and responsible European medical practitioners. The writer ably sums up in the following words:

"In conclusion, I desire to say that I am a firm believer in the value of suggestion in medical and dental practice, and that experience based upon years of scientific study in the phenomena of function leads me to earnestly advocate the use of hypnotic suggestion in the treatment of certain forms of disease."

Dr. Thomas L. Gilmer describes two simple methods of treatment of

FRACTURES OF THE LOWER JAW.

Head of boy was caught by descending elevator, lower jaw fractured at each angle, also on line with second bicuspid on left side. Much displacement. Disinfected with 3 per cent. solution of pyrozone and oil of cassia in water.

About the cervical portion of a number of teeth on each jaw, anterior and posterior to the compound fracture, was placed soft iron wires of sufficient length. These wires were tightly twisted to fit the teeth closely. The teeth of the fragments were brought into articulation with the teeth of the upper jaw, and the wires of the lower secured to those of the upper teeth, bringing the lower jaw firmly to the upper. To overcome the pull on the teeth by muscular strain, the bandage was applied loosely for twenty-four hours, when it was removed, as by this time muscular contraction was so far overcome as to render the bandage useless.

An excellent syringe for feeding the patient is that employed by the surgeon as a powder blower, but any bulb syringe with a sufficiently large nozzle may be used.

ANOTHER METHOD.

The other method of treatment is by splint. An impression is taken of the teeth of both jaws. If the fragments of the lower jaw are out of place, no attempt is made to hold them in place if they are displaced readily by muscular action. Casts are now made from the impression, and if the lower alignment of the teeth does not permit exact original articulation with the teeth of the upper cast, the lower is sawed in two on the line of fracture and the cast reconstructed by articulating the occlusal surfaces of the teeth of the two pieces with the occlusal surfaces of the teeth of the upper cast. The two pieces of the lower cast are now secured to each other by the application of a little soft plaster.

The teeth of the cast of the lower jaw are reproduced in Melotte's metal and on these is swaged a plate of German silver, silver or gold. This plate should extend down to cover at least two-thirds of the length of the teeth. Its length should be sufficient to cover several teeth anterior and posterior to the fracture. This splint should be cemented to the teeth with phosphate of zinc. This method is cleanly, easily made, and permits the mouth, if there be no other injuries of the bone, to be opened and closed at will.

The journals have been full of articles relating to the semi-centennial of anæsthesia. The *Western Dental Journal* for January publishes Dr. Garretson's address. It also has extracts from an article on "Hallucinations and Delusions." These extracts are published because of their bearing upon the subject of Hypnotism, which is at the present time engrossing the attention of the profession. A paper by Dr. C. S. Lane, of Oakland, Cal., is republished from the *Pacific Coast Dentist*; it is entitled, "The Dentist: His Relations to His Patients and to His Brother Practitioners." Among much trite and appropriate advice, worthy of emulation, he says: "The same law that requires us to be true to ourselves, requires us to be true to our patients, as worth and nobility of character always react, enriching others as well as the possessor; hence, if we are what we ought to be, and what we may be *in ourselves*, we are so much the more to our patrons."

From the *British Journal of Dental Science* Sir Walter B. Foster's after dinner speech at the Annual Dinner of the National Dental Hospital, of London, is reproduced in full.

Sir Foster, at length, covers the field so often trodden by laymen. He also refers in complimentary terms to the scientific achievements of such men as Tomes and Cunningham, and expresses the hope that some day the profession may be represented in the Medical Council by a dentist. Dr. Bonwill's article on filling children's teeth is also reproduced. The Minnesota State Dental Association has taken up as a topic for investigation the subject of Pyorrhœa Alveolaris; a committee of five having the matter in charge will furnish blanks to any practitioner who may desire to add the knowledge gained from his experience to the general store. A list of contributors to dental literature on this topic is also published. For blanks apply to Dr. W. P. Dickinson, Dayton Building, Minneapolis, Minn.

The International Dental Journal, January, 1895: The papers of Drs. Thos. Fillebrown and James E. Garretson deal with the part played by Horace Wells in the discovery of Anæsthesia and the benefits to mankind of this discovery. As so much has already been published on this subject we will not condense the papers. The *Chicago Tribune* for Saturday, January 5, has the following:

"Wells not the man,"—"Hartford dentist not the discoverer of Anæsthesia.

This 'end of the century' period is characterized as strongly by a mania for celebrations of anniversaries of all sorts as by any other one thing which might be mentioned. The most of these celebrations mark the anniversaries of well defined and generally undisputed historical events. A striking instance of a contrary nature has lately appeared. In itself it was unimportant. But it is a single gun in the re-opening of one of the fiercest conflicts in the history of the science of medicine.

December 10 last, there was held in Hartford, Conn., and the following day in Philadelphia, what purported to be the celebration of the fiftieth anniversary of the discovery of anæsthesia, which will stand forever as the peer of all the wonderful triumphs of medicine. Horace Wells, a dentist of Hartford, in the memory of whose alleged discovery a monument in that thrifty nutmeg capital bears a certain kind of witness, is the man in whose honor the celebration was held.

Under a Boston date of December 28 the following press dispatch was sent out last week:

The semi-centennial of the discovery of anæsthesia was celebrated last night at Young's Hotel by the Harvard Odontological Society. After dinner Charles A. Brackett, of Harvard, read a paper on the introduction and use of anæsthesia, which was afterwards discussed by the members. Among the invited guests were the Rev. Alexander McKenzie, Cambridge; Dr. Charles F. Withington, Boston; Dr. Taylor, Hartford; Profs. Fillebrown and Brackett, of Harvard.

ARRAYED AGAINST DR. HOLMES.

Were Dr. Oliver Wendell Holmes, the most distinguished physician ever connected with Harvard University, alive today he would probably have read the above with considerable indignation, for he has himself testified to the falsity of the premise which gave it birth.

WHAT WELLS DID NOT DO.

Simmered down, Wells' claims seem to amount to an assertion of knowing there was something to be found, but never finding it, a pretense of proprietorship in the pocketbook that he passed without seeing, but which another did see, an effort to obtain the credit for the discovery of a new planet which he thought he saw in the heavens, but never happened to speak about until another astronomer had definitely established its existence. Of the many who lay claim to part of the honor in the discovery of anaesthesia, Wells would appear to rank, by any one of many standards, pretty far down as to precedence.

Dr. Morton pursued his experiments in the retirement of the farm for a period and then went to Boston, where he became constant in his attendance at the clinical lectures and operations in the Massachusetts General Hospital.

Although Sir Humphrey Davy had in 1799 described 'laughing gas' and its effects Dr. Wells, the Hartford dentist, one day thought he had himself discovered it and he proclaimed to the world: 'A new era in tooth-pulling!' After a few experiments—upon which rest his claims solely—he also went to Boston in order to obtain something like an official indorsement of his methods and gave an exhibition of 'painless tooth-pulling.' Dr. Morton assisted him. Dr. Wells administered the gas and extracted the tooth, but the patient, instead of succumbing to the influence of the laughing gas, screamed with pain, to the discomfiture of the Hartford dentist and the derision of the spectators.

Wells returned to Hartford discouraged, told his friends there was 'nothing in it,' and abandoned his experiments. More than fifteen years elapsed before his 'new era of tooth-pulling' became a reality. Yet he appears on the scene a long while after to dispute before Congress Dr. Morton's right to a patent and with others to rob this public benefactor of his just deserts.

If the dentists of Hartford and Boston desire to celebrate the discovery of 'laughing gas' they might with better reason, it would seem, postpone the affair until 1809, and have a centennial in honor of Sir Humphrey Davy."

The whole article is an attempt to bolster the claims of Morton. Any of our readers who may have any new information to impart on this subject will confer a favor by sending it at once.

The paper on the "Relative Penetrating Power of Coagulants,"

by Dr. James Truman, has the double distinction of being published also in the *Dental Cosmos*. The paper, with numerous experiments, was prepared to show the penetrating power of coagulants rather than their diffusion. After taking finely attenuated tubes of glass and partially filling them with albumen and glycerine, various coagulating and non-coagulating agents were applied to the surface of the mixed liquid in the tubes. A photograph of the coagulation is shown to demonstrate the degree of penetration. (As glycerine is not found in the pulp of a tooth or the protoplasmic contents of the tubules, we fail to see anything conclusive in these experiments). The essayist did not succeed in diffusing chloride of zinc through the root of a tooth at all. He says that it will not pass through the cementum. (So far no experimenter has demonstrated the passage of a coagulating agent through the side of the root of a tooth without first depriving it of its coagulating property).

The January number of the *Dental Cosmos* contains an article read before the Homœopathic Medical Society of the county of New York, by George Howe Winkler, M. D., D. D. S., in which he discusses the disease of the teeth generally known as erosion. The cause of this destruction of the teeth is not yet generally understood, but he describes it as a diseased condition of the mucous glands of the gingival borders of the gums, and says that in the exercise of their power of elimination these glands throw out a poisonous secretion which in time poisons the glands themselves. As a remedy he claims a great deal for creosotum, and gives instances where he has used it, administered internally, in powder, pellet and liquid form. The writer ends the article by saying he believes that fifty per cent. of the decay of young people's teeth is absolutely preventable.

In the same journal we find an article read before the First District Dental Society of New York State, by Sidney S. Stowell, D. D. S., entitled, "Local Exercise and Dietetic Influence upon the Teeth."

The writer emphasizes the value of foods which require a great deal of mastication for their effect on the teeth, and cites instances showing that where solid foods have been the diet, the teeth are strong and free from decay, while where foods that require little mastication have been eaten, the teeth are decayed and often loose in their sockets.

He also gives instances of children brought up on milk foods having badly decayed teeth, while those who were given hard crackers or something similar to chew on have strong, well-formed teeth.

He closes the article by saying that the marked deterioration of human teeth dates from the time when finely-ground flour came into common use, and that the best preventive of decay is consumption of foods which require much mastication.

The Dental Cosmos, November. In the Transactions of the Southern Dental Association we find a paper was read by Dr. G. J. Friedrichs entitled "Dental Caries and Popular Fallacies," the synopsis of which fails to enlighten the reader as to the purpose of the author.

He refers to the paper by Drs. Underwood and Milles (1881), whose conclusions were "that caries is absolutely dependent upon the presence and proliferation of organisms." * * * He goes on to say that since then other investigators in the same field have confirmed these views (perhaps he meant this was a "popular fallacy," as he continues), yet notwithstanding this plausible theory, which accounts for the general cause of caries of the teeth, there still remains a "missing link" in the problem of dental caries which the germ theory does not solve, and that is what is called "Dental Erosion," a disease where the wasting of the tooth substance takes place without apparent cause." * * *

"The singular peculiarity to be noted is that it attacks both the enamel and dentine, while against ordinary caries the enamel is a protection."

The discussion failed to make any more clear the relation of the paper to its title, and was neither particularly instructive or interesting.

In a paper on "Hygiene," by Dr. R. R. Freeman, he said in closing "that in the future the services of the dentist would be prophylactic or preventive rather than curative."

God speed the day! But such a prophecy is much too rosy for the present generation to count upon.

Dr. Hewitt, of Chicago, as usual demonstrated the use of chloroform for the purpose of producing partial anaesthesia.

This, happily, brought out the regular earnest protests against Dr. Hewitt's claims of the absolute safety of chloroform under any circumstances. No intelligent body of dentists today would indorse any such claim.

In the proceedings of the American Medical Association Section on Oral and Dental Surgery, is an abstract of a paper by Dr. C. L. Goddard, of San Francisco, entitled "A Study of the Lateral Incisor," which showed earnest study of, and familiarity with, the subject, both from the literature and from his personal observations.

The writer expressed his convictions "that excepting the third molar the lateral incisor is out of line more than any other tooth." The cause for this he attributes to the narrowness of the inter-maxillary bone, which also, he says, "will account for the sharp nose, narrow nostrils and small nasal cavity, noticed in so many persons."

"Is nature striving to create a new order of beauty, by gradually decreasing the size of the inter-maxillary bone, and thus narrowing the anterior portion of the face?" The *"lessening of the inter maxillary bone, would, in some cases, have the effect of crowding the lateral out of position as shown by these cases of irregularity, and in other cases of suppressing the lateral altogether."*

There was no discussion, properly speaking; Dr. Bonwill said he could not discuss it unless the audience would follow him for three hours—which, it is presumed, they did not show any eager desire to do, as he did not pursue the matter. Dr. Goddard, in closing, desired to bring out the point which he endeavored to make in the paper, that "decrease of the width of the maxillary bone may produce both the loss of the tooth (lateral incisor) and irregularities in its position.

A paper by Dr. Vida A. Latham, of Chicago, entitled "Some Pathological Notes on Neoplasms of the Maxilla," was read by Dr. Dean. The paper showed familiarity with the subject, but elicited no discussion.

A paper by Dr. A. E. Baldwin, of Chicago, entitled "Random Thoughts on Our Specialty," contained some excellent suggestions.

He emphasized the necessity for truly scientific study and of only placing the results of such work before the profession when it can be clearly demonstrated. He also urged independence of thought in members of the profession, that they may not accept the *ipse-dixit* of authority without investigation.

Dr. Talbot in closing the session congratulated the section on the high character of the papers presented; and incidentally we

learn from him that he was "one of the originators of the section which was instituted for the purpose of educating the medical profession in dental subjects. * * * He believed that we would in fifty or a hundred years, be recognized as an important part of the medical profession."

Some of us hope that consummation may be reached in a somewhat shorter period.

In proceedings of the "Midwinter Fair Dental Congress" is an abstract of a paper by Dr. Earl D. Eddy, of San Francisco, in which he advocates the use of "Pental" as an anæsthetic. He "recognizes the elements of danger in all anæsthetics," but says "that pental is less likely to produce these danger signals than any other substance heretofore used, is certain to his mind, as the result of experience with pental, gas, chloroform and ether. The chief advantages of pental are (1) the absolute certainty of a painless operation; (2) rapidity; (3) immediate and complete recovery of the patient; (4) simplicity.

A paper by Dr. A. C. Hart, of San Francisco, entitled "The Pathology and Successful Treatment of Periodontal and Endodontal Tumors, commonly called Alveolar Abscess and Fungous Growth of the Pulp," urges the adoption of this new nomenclature, but it is doubtful if such a change is likely to occur very soon. He claims that the term "Alveolar Abscess" is a misnomer. He seems to have fallen into the not infrequent habit of speaking of the "Alveolus" as a tissue or structure, apparently forgetting that it is only a hole into which the roots of the teeth are adjusted. He says "the abscess * * attached to the end of the root of a tooth has no connection with the alveolus. * * It is never a growth from the *surface* or *substance* of the alveolus as some assert."

The universal understanding of the term "Alveolar Abscess" is that the abscess is located within the alveolus, simply defining its locality without defining the tissues involved. These are the only points in the paper challenging attention, and the value of the paper as a whole may be inferred from these extracts.

There is nothing further reported in the transactions that is new or interesting.

BOOK REVIEWS.

Transactions of the World's Columbian Dental Congress, Chicago, August 14, 15, 16, 17, 18 and 19, 1893.

In two volumes. Edited for the General Executive Committee by A. W. Harlan, A. M., M. D., D. D. S. Assisted by Louis Ottofy, D. D. S. Committee on Publication: A. W. Harlan, A. O. Hunt, Louis Ottofy, Chicago. Press of Knight, Leonard & Co., 1894. Pp. LIV. 1068.

The appearance of these two volumes marks the completion of the Herculean task which had its official origin in resolutions adopted at the meeting of the Southern Dental Association, which met at Atlanta, Georgia, July, 1890.

No man can have a full knowledge of the Congress until this report is before him—for it was impossible to be informed at the time of the proceedings in the different sections. Then, too, the most assiduous member could not escape the allurements of the World's fair and the extraordinary opportunities it afforded for fellowship.

For the first time the profession is able to pass judgment upon the work, and to know whether the promises held out by the promoters were fulfilled. A candid review of the transactions, as here published, will convince the most incredulous that even more than was hoped for was attained. It would seem that the mere bringing together of dentists so far removed, both geographically and scientifically, was ample compensation for all the effort put forth. To say that this fact has not benefited the profession for all time is to lose sight of one mighty truth. The list of members, representatives of the profession all over the world—albeit many well-known names do not occur—eloquently speak of its far-reaching influence.

But of the social features of the Congress, the means it afforded for interchange of ideas, renewals of old friendships and formation of new ties, the printed transactions can give little evidence.

The disconnected manner in which many of the papers reached the profession through the monthlies, gave some idea of the scope of the scientific work, but destroyed the ensemble, judging the meeting as a meeting. But through that medium we were all made familiar with the salient features.

A not over vigorous censorship has permitted the presentation of the usual number of weak or undigested papers—a state of affairs perhaps unavoidable considering their diverse sources—but almost every paper will be read with interest, if not instruction, and although space will not permit of detail some of the more noteworthy contributions may here be pointed out.

In the general sessions: President Shepard's Inaugural Address. Dr. Zsigmondy's Congenital Defects of the Enamel. Dr. Andrews' Development of Enamel. Dr. Whitney's Teeth of Ancient Hawaiians. Dr. Cunningham's Treatment of Irregular Teeth by Luxation.

In Sections: Dr. Bonwill's Hypothesis. Dr. Guilford's Homology of Teeth and Hair. Dr. Abbott's Teeth of Lower Jaw at Birth. Dr. Caracatsanis' Paper on Pyorrhoecia and the discussion thereon. Dr. Stewarts' Experiments with Bichloride of Mercury. Dr. Viau's Physiological Action of Cocaine. Dr. Cryer's Surgical Engine and its Uses. Dr. Brophy's Surgical Treatment of Palatal Defects. Dr. Schreier's Potassium-Sodium Treatment of Canal Contents, Dr. Ames' Oxyphosphates. Dr. Whitefield's Galvanic Action between Gold and Base Metal Fillings. Dr. Cattell's Operative Technics. Dr. Jackson's and Dr. Case's Orthodontia. Dr. Godon's Immediate Prosthesis. Dr. Black's, Dr. Newkirk's and Dr. Kulp's Nomenclature and Dr. Cunningham's Dental Hygiene.

These papers and others brought out excellent discussion which is quite readable and manifested a considerable interest.

The report of the clinics conveys no adequate idea of the tremendous interest taken in them nor of the multitude of matters presented.

The work in some of the sections was by no means exhaustive or comprehensive, but all considered was eminently satisfactory.

As books, the transactions are well planned and executed. There are 1068 pages—a huge task for the committee who had charge of the editing and publication—requiring an enormous expenditure of time and energy of men who already had their share of professional cares, and which unfortunately receives small appreciation and too frequently hard criticism. The transactions of the World's Columbian Dental Congress are entirely worthy a place in the historical literature of the profession.

J. W. WASSALL.

News Summary.

Have you used cassia and iodine?

Did you ever dust a cavity to see if it were dry?

What do you do when you find a hole in the side of a root?

Some samples of "electrozone" are coagulators of albumen.

The Odontological Society meets at the Athletic Club monthly.

Dr. W. X. Sudduth paid a flying visit to Chicago in January.

A file cuts better than a single number; there is more in it.

Dr. J. M. Browne, late Surgeon General of the navy, is dead.

Dr. H. E. Pope, of Detroit, was killed recently by a professional nurse.

Send in your papers for publication and give them a larger circulation.

Wonder if the late Professor Blaney will not turn over and sigh when he spells his name in the *Jour. Am. Med. Ass'n* for December 15.

The Odontographic Society holds its meetings at the Briggs House second Monday of each month.

G. V. I. Brown, D. D. S., of Duluth, attended the last meeting of the Chicago Dental Society.

Why do we not see a "Stoke's" clamp in this country of ours—a hinged clamp that does not pinch or mar the tooth?

Bichloride of mercury when dissolved in 1-10 Boroglycerine, is no longer a coagulator of albumen.

A pulp may be covered with gum dammar, then cover the gum with an oxysulfate of zinc—when hard, fill the tooth with what you like.

Dr. Thos. E. Weeks, of Minneapolis, Minn., spent a few days in Chicago, recently, recuperating from his arduous labors in the Minnesota Dental School.

Dr. A. W. Haidle, of Detroit, was in attendance at the meeting of the Delta Sigma Delta Fraternity in January.

It must be said to the credit of the dentists that they are doing all they can to keep the gold in this country.

The new building of the dental department of the University of Iowa has been finished and turned over to the authorities.

In consequence of the cholera scare the world over is richer in vitality by 17 per cent. Improvements in sanitary matters always follow the scare of epidemics and epidemics.

The Dental Society of Holland has appointed Messrs. J. J. Grevers, John E. Grevers and N. J. Greter, who, in conjunction with the presiding officer, shall determine the feasibility of establishing a dental school in Holland.

We have not seen Dr. Hewitt's new formula for making copper amalgam, but we hope he will soon publish it for the benefit of those dentists who need to and do use a plastic filling.

Dr. W. D. Haggard, Jr., made our report of the Horace Wells memorial celebration in the January issue. Dr. Haggard is doing some post-graduate work in genito-urinary diseases in Philadelphia.

It is safe practice in all pulpless bicuspid, with long cusps, to shorten them so that liability to split is not ever present. This may not always be esthetic, but it is better than losing half of the tooth and a portion of the periphery of the root.

Recently we have used one to two per cent of nitrate of silver in water to arrest chronic discharge from the Antrum—with success. In one case of two years' standing, washing the cavity twice daily for three weeks, caused the discharge to cease.

The Alumni Association of the Chicago College of Dental Surgery gave a monster clinic the 9th of January. A very large number of visitors were present. Dr. W. G. A. Bonwill, of Philadelphia, operated during the day.

Use liquid cosmoline to oil the joints of forceps, and other jointed dental instruments likely to grow rusty when in use. This will prevent it. We use it in gun barrels, syringes and also on broaches to keep the dust away. It is good for chapped hands, lips, etc. It does not absorb moisture.

Dr. C. N. Johnson has resigned the editorship of the *Dental Review* to devote more time to general literature and his other pressing professional duties. It is not likely that a new editor will be announced for some time, as the editorial staff is so large that the interests of the journal will be well taken care of. The January issue has appeared, shorn of some of its features, but looking quite as attractive as of yore.

In the friendly struggle now going on in France the stomatologists are getting the worst of it. There are two dental schools in Paris, both well equipped and well manned, professionally. The stomatologists led by Magitot point to their swelling chests and when speaking of education say as one more famous said: "*L'état c'est moi.*" The founders and teachers in the schools say, with justice, that the schools are a fact, that they should be utilized, which is scouted at by the stomatologists. They will build a new system, it will bear the earmarks of stomatology on it, or they won't play, etc. As we, in our sanctum sit, we see it all. We could settle the fight but hold, we have not been asked to do it; this is no Japanese-Chinese show, neither side will capitulate. A little later perhaps material concessions will be made, and then the dental schools of Paris will become famous. Teachers will be sought from other lands and no dental education will be complete without a pilgrimage to Paris, London and Berlin. So mote it be.

ROOTS—WHAT SHALL WE DO WITH THEM? is the title of a paper recently published in England. Well, crown them, if possible, if not plant them deep—perhaps they will come up in the spring! Roots, how succulent some are, tubers and the like, roots—the business portion of the life of a porker, roots—the starting point in a family tree, roots—the source of income for many dentists, roots—covered with *zahnstein* fall out, roots—not filled give pain, roots—septic cause abscesses, some roots—are difficult to fill, roots—should be

sterilized, roots uncovered are sensitive, roots—covered up or in, cause neuralgia, roots exostosed cause pain, roots—absorbed fall out, roots—split must be taken out, roots—are not storehouses for broken drills or steel, roots—should not be filled immediately, unless encysted or pulp fully removed, roots—should not be drilled out, save in rare instances, roots—stained with Ag. N. O. 3 may be cleaned with iodine tr. then ammonia spts., roots—necrosed must be cut off or extracted, roots—perforated on the side must be filled with lead, tin or gutta percha, roots—soaked with cassia become yellow, roots—filled with cotton are not safe, roots—filled with paraffin, shellac or gutta percha are safe, roots—should not be filled with gold, or copper wire or wood, roots—root, roo, ro, r—oh!!!

One of the crying evils of clinics is the man who has something to sell. We think the one who has something to sell should be placed in a room by himself and not be allowed to force wares on spectators who wish to learn something. A small clinic is generally the best—one operator to about eight spectators, then let 'em move on. At the New York clinic all the operations were by number, so no difficulty was experienced in finding any one at any time.

The St. Louis Dental Society elected the following officers for this year: President, Dr. Walter M. Bartlett; Vice-President, Dr. M. R. Windhorst; Corresponding Secretary, Dr. F. F. Fletcher; Recording Secretary, Dr. P. H. Morrison; Treasurer, Dr. A. J. Prosser; Publication Committee, Drs. L. A. Young, P. H. Eisloeffel and T. L. Pepperling; Committee on Ethics, Drs. Wm. N. Morrison, P. F. Helmuth and O. H. Manchard. Please publish in next issue of the DIGEST and oblige. Yours truly,

F. F. FLETCHER, Corresponding Secretary.

TO THE EDITOR:

Dear Sir—In looking over the DENTAL DIGEST for January, 1895, on page 62 you have noted an instance of chloroform narcosis being produced on a sleeping child and one tooth extracted. Child awoke two hours afterward.

I would say, five years ago J. C. Cook, M. D., and myself produced chloroform narcosis on a child eight years of age and extracted two six-year molars and three temporary teeth, the child remaining unconscious of what had taken place—slept quietly all night. This method has been a common practice with us for eight or nine years.

Yours truly,

J. E. HINKINS.

NOTICE.

The Chairman of the Executive Committee of the Horace Wells Fiftieth Anniversary Celebration announces that the papers read by Profs. Fillebrown and Garrettson at the meeting, and the speeches delivered at the banquet, have been prepared for publication in the proposed souvenir volume and will be issued upon the receipt of a sufficient number of subscriptions to cover the expense. Price, \$1.50. The undersigned will receive subscriptions, receipt for same, and deliver the book upon completion.

J. D. THOMAS, Chairman.

FIRST DISTRICT DENTAL SOCIETY, S. N. Y.

An *all-day* clinic will be held under the auspices of the First District Dental Society, S. N. Y., on *Tuesday, March 12th*, at the N. Y. College of Dentistry, 205 East Twenty-third street, N. Y.

A cordial invitation is extended to all members of the profession to be present. Any one desiring to clinic or exhibit anything of value, is requested to communicate with the committee.

JAMES G. PALMER,
Chairman Clinic Committee,
18 West Thirty-fifth street, N. Y.

NECROLOGICAL.

WILLIAM O. KULP, D. D. S.

Died at Davenport, Iowa, January 12, 1895. William O. Kulp was born at Wadsworth, Ohio, September 19, 1836. He had, therefore, entered upon his fifty-ninth year at the time of his death. He was remotely of German ancestry, his family having come from Germany about 200 years ago. At the age of twenty he commenced the study of medicine, and three years later went to Muscatine, Iowa. Trouble with his teeth and the difficulty he experienced in its alleviation turned his attention to dentistry. In Muscatine he became the junior partner of H. G. Hall, dentist of that place. After a couple of years Dr. Hall retired, and Dr. Kulp, after perfecting himself in a course of study at the Missouri Dental College, from which he graduated in 1866, practiced alone in Muscatine for the succeeding decade, going to Davenport in 1871. He was first associated with Dr. White, practiced long by himself, and in 1893 admitted his son, Dr. J. R. Kulp, to a partnership, under which their business has since been conducted.

It was through the efforts of Dr. Kulp that the Iowa Dental Association was organized in 1863. Since 1864 he has been a member of the American Dental Association. In 1867 he was called to the chair of operative dentistry in the Missouri Dental College, but illness in his family caused him to resign the position and return to Muscatine after a year. Upon the organization of the dental department of the Iowa State University, some fifteen years ago, he was chosen as the professor of operative dentistry and dental therapeutics. He will not be easily replaced upon the faculty of the university.

He was one of the principal supporters of the movement which resulted in the State regulation of the practice of dentistry in Iowa, and was one of the vice-presidents of the World's Columbian Dental Congress, one of the important meetings of 1893.

In New York City in 1861, Dr. Kulp and Miss Mary A. Jones, daughter of Rev. D. C. Jones, a well-known writer of church music, were married. To them were born six children, five of whom survive with their mother to mourn the loss of a loving husband and father. They are Mrs. Kate R. Cameron, Mrs. Lillian B. Downer, Dr. J. R. Kulp and Misses Zella May Kulp and Jeanne Cleaves Kulp. The first born, William, died in infancy.

The DENTAL DIGEST extends to the family of the deceased heartfelt sympathy in their hour of bereavement.

The Dental Digest.

Vol. I.

CHICAGO, MARCH, 1895.

No. 3.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 69, No. 2, Vol. I.]

In our second article in the February number of the DIGEST we dwelt at length on methods of adjusting the dam, treating and preparing sensitive cavities, and emphasized the importance of lessening discomfort, and of inflicting as little pain as possible, in consideration of the patient and the operator.

Let us now take up the question of correct diagnosis and prognosis, which should have been treated before discussing the subjects in the last paper, but for the fact that in order to make a correct examination of most cases the dam has to be used. To determine how well the patient will endure the suffering is also so great an item that it was discussed first. In our estimation, the making of a correct diagnosis requires better judgment and more careful thought than any other duty a dentist has to perform. Long observation has convinced us that the great majority of failures in dental work are due to lack of skill in diagnosing and deciding what is best to be done, rather than to lack of skill in operating. Scores of men can fill a tooth when the plan of operating has been decided upon, where only an expert could decide upon the best plan to save the tooth for use under all the conditions. We emphasize this because we believe that it is a point too frequently overlooked as unimportant. Many things must enter into the calculations when determining the course to be pursued, the amount and location of the decay; the care the teeth are likely to receive after being put in order; the health of the patient, especially in regard to digestion; the age;

the power of endurance and willingness to submit to the necessary pain; and lastly, the ability and disposition to compensate the operator for services rendered.

These are among the important factors or questions which must be taken into consideration when deciding what shall be the plan of procedure. When called upon by new patients where the teeth are needing much attention, and especially in the case of children, we have found it a great advantage to close the cavities with cements without very thorough preparation of the cavities until we have had time and opportunity to study the conditions above named. When we can be reasonably sure of the care the teeth will receive after filling we know better what method to adopt, what material to use in the permanent operation. We next consider the following questions: Are the teeth up to the average in quality? Are there many cavities? Have they had average care or been neglected by the possessor? Are we going to be able to get the patient to be more careful to keep the teeth clean? We have already, while closing the cavities with temporary fillings, learned whether the patient is willing or not, with careful maneuvering on our part, to submit to the necessary torture. We give now the first lecture and instructions on how to clean and take care of the teeth—a brush and a wash, and perhaps a powder are in the hands of the patient, and another appointment is made.

We have the next call very soon, and if an examination shows the teeth not to be well brushed, we repeat the first lecture. We are now sure there is but little use in filling this young person's teeth, unless they will have unusually good care. We are kind to the patient, but serious and firm, perhaps if need be a little disgusted, and close the examination with another appointment for the next day or very soon. If the next examination shows great improvement, we give an appointment for a sitting to fill one of the simpler cavities. On account of all the time taken this must be some days off, and perhaps it will be well to have another call from the patient just to see that during this time the teeth are getting better care each day. The second examination of our young patient may not show so great an improvement and we find we must give another lecture, this time with the aid of a mirror which fully exposes to the patient the filthy and neglected parts, then another appointment is made for the next day.

We invariably repeat these examinations and continue to insist upon better care of the teeth until a reasonable amount of diligence and skill is secured. We urge that until this interest on the part of the patient is secured, or until you know about what to expect in the matter of care of the teeth after filling, it is impossible to decide upon either method or material intelligently, as after-care is the greatest factor in the problem and hence must enter largely into the calculation. Every dentist knows how much of his best work is undone by neglect on the part of the patients of all ages, and even among those who are particular to the point of fastidiousness in other things. But the young operator says: "This education all takes time and doesn't pay rent." Charge for it, charge for every appointment; and if you succeed in educating your patient into a proper care of his teeth you have rendered him a greater service than by giving him any amount of skill you may possess in the way of operating. The day will come—is coming fast—when patients will pay physicians to keep them well, not to make them well; when patients will pay dentists to preserve their teeth, not to restore them. So let the first step in diagnosis be the education of your patient into hearty cooperation with you. Do it in your own way—you could not do it in any one else's if you tried, but do it without fail.

It is unfortunate that we cannot tell our patients that proper care given in season will always preserve them, but we are obliged to admit the fact that teeth will decay in some mouths despite all the care that can be given by patient and dentist, and from causes usually beyond the control of either, such as poor quality of teeth, poor digestion, ill health, etc. These facts are too often made the scapegoat for lack of skill and carelessness on the part of the operator, and much dishonesty escapes detection by attributing failure in work to these causes.

To build up a first-class permanent practice one should make it a rule to send every patient away satisfied that he has been justly dealt with, and this cannot be done by presenting a large bill, however just it may be, without previous consultation and preparation unless the patron has previously been educated in the matter of fees. We shall describe conditions under which it is best to use a variety of methods, and how we prepare the parent or guardian so as to insure proper compensation without unpleasantness when the work is finished, in our next article.

A METHOD FOR ADAPTING LOGAN CROWNS.

BY RODRIGUES OTTOLENGUI, NEW YORK.

Logan crowns, for many reasons, are most valuable, yet they often fail. Two chief causes mainly contribute to such result. First, the approximating surfaces of crown and root are not accurately adapted the one to the other. At some point a space occurs, so large that there must be an excess of cement—which, eventually washing out, leaves a pocket for the retention of debris. Decay creeps in, and when the crown finally comes off the root is found to be too far destroyed for further salvation.

Second. An inflamed condition of the gums follows the placing of the crown. Where this proceeds to extremes, a suppurative stage ensues, which marks a pericementitis at first restricted to the vicinity of what was the neck of the tooth, but rapidly progressing towards the foraminal extremity, where it ends in alveolar abscess and loss of the root. The trouble is that the crown was not circumferentially adapted to the root, but by overlapping rested upon the gum tissue, producing irritation, absorption, a space for lodgment of food, and destruction of the soft tissue in consequence.

A plan which obviates these two difficulties should be welcomed by the profession. It is as follows:

The root and crown are prepared as usual with the best skill of the operator. Then take pure gold plate, 34 guage, and form a disk having a hole in center for the passage of the pin. Fig. 1.

This disk is softened by passing through the flame, and placed over the crown, the pin passing through the hole. Next the crown is placed into position and the disk thus forced against the end of the root. Fig. 2.

This will *approximately* mark on the disk the circumferential shape of the root end. The disk is now moved from the crown—the excess of metal trimmed away—and it is tried on the root from time to time (not on the crown,) until the circumferential shape of the disk and root end are identical. The disk may now have a shape like Fig. 3, especially if we are dealing with a bicuspid. If it be placed again on the crown—and pressed against the porcelain—the relative circumferential shape of the disk and the crown would appear as in Fig. 4, from which it is manifest that if the crown had been set as first prepared, the overlapping porcelain—

at a, a —would have extended beyond the edges of the root and have rested on the gum.

Gutta percha is now placed in the hollow part of the crown around the pins, and the disk is warmed and pressed to place, the gutta percha holding it there —while with small corundums in the engine the lateral excess of porcelain is ground away until the end of the crown coincides circumferentially with the disk —and consequently with the root end.

This accomplished, the crown is warmed until the gutta percha is slightly softened, and it is then placed in the root and quickly driven home with a few smart raps with a mallet. The gutta percha will be resistant enough to compel the soft gold disk to take im-



Fig. 1.

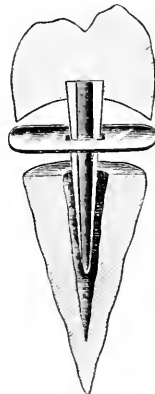


Fig. 2.



Fig. 3.



Fig. 4.

press from the root end, thus adapting itself accordingly. At the same time should there be a space anywhere the gutta percha will be forced through at that point and when removed it will indicate not only that the approximating surfaces are not yet coincident, but it will also point out exactly the connection needed to perfect the fit.

The disk and gutta percha are removed to allow grinding with a corundum, and this process is renewed until the fit is as accurate on approximating surfaces as it was made circumferentially.

The disk finally takes an accurate impression of the end of the root touching it, and it and the gutta percha are left in place when the crown is finally set. Thus we have a close joint, with a minimum of cement, and also accurate adaptation circumferentially. Set in this way, on healthy roots, Logan crowns are permanent fixtures — or as much so as anything in the mouth can be.

THREE DIFFICULTIES OF THE YOUNG PRACTITIONER.

J. E. DAVIS, B. S., D. D. S., COLUMBUS, O.

Probably three of the most difficult things for the young practitioner to master are: Filling pulp canals, capping nerves, and overcoming extreme sensitiveness in filled teeth, where the filling extends close to the pulp of the tooth.

In filling pulp canals I have long since discarded all but the following method: Apply the rubber dam, cut away the tooth enough to have thorough access to each nerve canal, wipe out all moisture and foul matter, using peroxid of hydrogen, dry with hot air, then thoroughly saturate the canals with pure wood creosote, and again dry with hot air. Mix oxy-phosphate cement thin enough to flow, and if you are working on a lower tooth drop it into the tooth, and with a fine broach, working it up and down in the canals, you can easily work the cement to the apex of each canal, then fill balance of tooth as usual. If it is an upper tooth, tip the head well back and slide the cement from the spatula with the broach. A little practice will enable you to fill canals of upper teeth as well as those of lower. You need never look for trouble from a tooth treated in that way. Where there is no soreness or ulceration no preparatory treatment is necessary.

Capping nerves was once a great bugbear to me, now I think little of it. If the nerve is badly exposed and has been aching for a few days, years of experience have taught me that it is no use trying to save it alive, so I apply nerve paste and destroy, then fill pulp canals. But where there is but little inflammation and exposure, with but very little pain, or only accidental exposure from peeling off the layers of decay, I have found that it is safe to cap the nerve. Take a small ball burnisher, dip the ball into a saturated solution of nitrate of silver, and apply over the bottom of the cavity and pulp, being careful not to bring the silver too near the edges of the cavity, as it will discolor them, then dry the cavity with warm air. From the outer leaf of your gold foil book cut a small piece of paper just large enough to cover the bottom of the cavity, but not large enough to come close to the margins of cavity. Dip the paper into Gilbert's non-conductive tooth lining, lay over the exposed nerve, wipe out any surplus with cotton pellet, dry with warm air, use oxy-phosphate first, and finish filling with any kind of material

you wish. You may expect the tooth to be comfortable ever afterwards.

Every dentist has had patients come back soon after having teeth filled, and complain of the teeth being so sensitive that they cannot take anything cold or hot into the mouth, and the teeth seem to get worse rather than better. The usual course of pepper pads, etc., only puts them off for a day or two, when they return complaining more than ever. Where the teeth are very sensitive in excavating, or where the decay extends very close to the pulp, take a small ball burnisher as before described, dip into saturated solution of nitrate of silver, apply to bottom of cavity, and where the decay extends very close to pulp apply a little non-conductive tooth lining over bottom of cavity; use oxy-phosphate cement first, then the regular filling material. It works like a charm. I have removed fillings from over-sensitive teeth where the pain had become almost unbearable, applied nitrate of silver to cavity, refilled immediately, and had no further trouble with the teeth whatever.

EXTRACTING TEETH BY ELECTRICITY.

Trials have been made at London with a new apparatus for the extraction of teeth by electricity. It consists of an induction cell of extremely fine wire, having an interrupter that can vibrate at the rate of 450 times a second. The patient sits in the traditional armchair, and takes the negative electrode in his left hand and the positive in the right. At this moment the operator turns on a current whose intensity is gradually increased till it has attained the utmost limit the patient can support. The extractor is then put in circuit and fastened on the tooth, which, under the action of the vibration is loosened at once. The operation is performed very quickly, and the patient feels no other sensation than the pricking produced in the hands and forearms by the current.

AN EASY AND SAFE METHOD OF REMOVING PULPAFTER DEVITALIZATION

Take a watchmaker's pivot broach, known as the Swiss broach, anneal it, wind a few shreds of cotton around the end, push it into the pulp cavity, and slowly twist it. As the cotton is wound around the broach, the pulp will cling to the cotton, and thus will be taken out whole, without the danger of breakage usually accompanying the use of barbed broaches. It is not necessary to carry the instrument to the end of the root, but some cotton should be forced ahead of the broach before twisting it.

C.

A PROTEST.

BY C. W. STANTON D. D. S., BUFFALO, N. Y.

The recent acquirement by a Dental Manufacturing Co. of the Hollingsworth system for crown and bridge work, and the attention drawn to this fact and to the system itself by the advertisements in all the Dental journals and by a special pamphlet sent out in October, brings into much greater prominence than heretofore the excellences of the Hollingsworth system. These excellences are very pronounced and are fairly familiar to the dental public, so I need not enlarge on them here. But there is one feature of this system which cannot be commended.

Every member of our specialty, whose standard is sufficiently exalted to allow him to subscribe to the Code of Ethics of the American Dental Association, ought to be refined enough not to employ the system for the manufacture of gold centrals, laterals or cuspids, as described on page five of the October pamphlet.

The height of art is to conceal art. But this setting of metallic shells formed in imitation of the teeth in the front of the mouth where they invite attention by their foreign and artificial character is not art in any proper sense of the term. Instead of hiding the evidence of decay in the natural teeth, we call in most emphatic manner attention to that fact.

So great is the variety now of porcelain teeth—almost infinite in shape and color—that it is not difficult to place in the front part of the mouth a porcelain substitute so realistic as almost to defy detection by an expert. What right then—pecuniary, professional or moral—has any man to place in sight anything so pronouncedly artificial, or to attract attention when he should divert it. This advertising the loss of natural crowns instead of hiding it, is wrong.

It is no justification to claim that very many do it, including many of our best "operators," and that our patients like them. That is not a reason, and only a very poor excuse. If our patients have erroneous ideas as to what is in good taste, we ought to educate them to better ideas. It certainly is part of our duty to educate our patients and to educate them along right lines.

No man has the right, whether prompted by his own cupidity or the vanity of his patient, to place a gold shell in any mouth where it will show. In the superior arch of a lady's mouth a gold

shell anterior to the molars ought properly to make a man liable to an action for malpractice. In a gentleman's mouth curtained by a heavy mustache the rule need not be so pronounced.

It is an unpleasant fact that the manufacture of gold shells for the incisors and cuspids and their sale at the dental depots seems to be on the increase. It is a long step backward in dental taste and decency, and the time is not far distant when we shall realize this fact. This is one of the technicalities in dentistry like copper amalgam, which will soon recede leaving its train of disgusted patients and operators to regret that they ever felt its influence. Many men who would not under any condition put amalgam fillings in front teeth are putting on these crowns, although they are as objectionable. When we practice dentistry, let it be on a higher plane of taste than that shown by native Indians or negroes, who display beads, silver and gold, from ear and lip, and fancy themselves beautiful. We ought to frown on this whole gilded pretence of substitution.

There is no justification of any proper sort, for these shining, brassy disfigurements glistening from the mouth of our duped patients. When they ask for teeth, let us give them teeth and not hang up a gilded memorial tablet to commemorate the loss of their predecessors, the natural organs.

"SILVER" FOR ROOT FILLING.

In the December number of the *Dominion Dental Journal* there is an article by Mark G. McEllimney on "Pulp canal filling," wherein he recommends "silver" as a permanent root filling, which he considers an ideal filling, as absolute dryness is not necessary whilst introducing it.

By silver it is supposed he means amalgam, and *that* will be found very difficult to carry to the end of a torturous root canal. In a number of experiments made with teeth implanted in plaster of paris (a cuspid, bicuspid and molar) where the canals were very much easier of access than in the mouth, it was impossible to fill one root perfectly, as the amalgam, not being a material that would flow, had to be put into every little space, which is almost an impossibility, owing to the inaccessibility of the part and the want of cohesion of the material. The author may have acquired an expertness in manipulating amalgam for root filling, which will carry him beyond the probability of failure, but it seems on general principles, combined with the experiments made, that the plan recommended is very likely to bring a number of "chickens home to roost," that will require a lot of disposing.

L. N. SEYMOUR

RALPH'S FIRST DENTISTRY.

DR. I. P. WILSON, BURLINGTON, IOWA.

One of my neighbors has a Maltese kitten which used to be subject to the most violent fits. At such times its eyes would look like balls of fire, and in the most frantic manner it would spring into the air and against the window panes, sometimes breaking the glass and terrorizing the whole family. The mother would jump on to a chair, the children look frightened, and the father gravely remark that "The blamed cat ought to be killed." After these demonstrations the kitten would fall to the floor and lie for some time in an unconscious condition.

One day the mother said to her son, "Ralph, that kitten acts very much as some babies do while teething." This made Ralph think that his feline pet needed the services of a dentist, and as he expects some day to be a dentist himself, he commenced at once to investigate the condition of the animal's teeth. He found the gum; red, and two or three of the teeth loose, which he proceeded at once to extract.

For weeks previous to this time these fits were of almost daily occurrence, but since the operation, which was over a year ago, there has not been a single recurrence of the spasms.

Some years ago a favorite dog of mine had been moping around for several days, and it occurred to me that possibly his teeth were aching. On examination I found one of the teeth loose, the gums swollen, and every indication of the formation of an abscess. When I took a pair of forceps and extracted the tooth, the grateful animal ran around wagging his tail, and expressing, as best he could, his gratitude for the service I had rendered him.

There can be no doubt that lower animals suffer many of the ailments supposed to be peculiar to human beings, and possibly the very common difficulty, especially with Maltese kittens, of having fits, and often dying from them, may arise from dental irritation.

Military Duty and the Professions.—The *Christian Register* says: "Dr. Baxter, examining surgeon during the civil war, in tabulating the results of his examinations, shows that out of every 1,000 clergymen examined, 954 were unfit for military duty; out of every 1,000 journalists, 740; of physicians, 670; of lawyers, 544; while of farmers, only 350 were thus disqualified."

Digests.

Transactions of the World's Columbian Dental Congress.

Paper by Dr. W. D. Miller, Berlin, Germany, "Concerning various methods advocated for obviating the necessity of extracting devitalized tooth pulps."

The essayist thinks that the common practice of removing pulps and filling canals in incisors and cuspids is so easily carried out and so certain in results that no better method is likely to be found, but says that it would be "a great boon if some means or method could be devised which would render the tiring, expensive and sometimes impossible task of removing the pulp and filling the root canals of molars unnecessary."

He then reviews the theories of Witzel, Herbst and Bodecker, who have advocated the practice of removing the coronal portion of the pulp after the application of arsenic or cobalt, and leaving the pulp stumps *in situ* in the canals with the idea that their vitality is maintained under these circumstances, and also the theory of Baume, who recognized that "it is useless to attempt to retain vitality in the pulp after the application of arsenic," but who believed that the stumps could be "pickled" so as to remain inert.

Dr. Miller thinks that the solution of the problem lies not in the attempt to retain vitality in the root-stumps, but to so impregnate them with an antiseptic that they will not decompose.

He then says:

"The qualities desirable in a substance which is to be employed for the purpose in question appear to me to be the following:

"1st. It must be a strong antiseptic.

"2d. It must be sufficiently soluble and diffusible to guarantee the impregnation of the whole pulp.

"3d. It must not be so diffusible that it will be completely taken up by the surrounding tissue and finally disappear altogether, as is the case with applications of carbolic acid. It is my impression that there is greater danger in too great solubility than in insolubility.

"4th. A coagulating action upon the tissue of the pulp appears to me to be desirable, though it may not be absolutely essential. A pulp which is coagulated into a hard, insoluble body, is less likely to furnish nourishment for bacteria, and less likely to offer irritation to the periapical tissue than one in a soft or semi-liquid condition. I am inclined to think that one cause of the failure of Baume's borax treatment is in the fact that the pulp becomes crowded into a liquid or semi-liquid soapy mass, with a strong alkaline smell and reaction, which I hardly think can be indifferent to the tissue about the apical foramen.

"5th. It is desirable that the substances employed have no irritating action upon the pericementum, either at the time of application or subsequently.

"6th. It should not discolor the tooth, although, as the treatment concerns chiefly molars, a slight discoloration need not be considered as a very serious matter.

"7th. Solid substances are better adapted to the purpose than liquids.

"We shall see that it is about as difficult to find a substance which fulfills all the above-mentioned conditions, as it is to find one that fulfills all the requisites of a perfect filling material."

After experimentation with various antiseptics he was induced to use, more than any other, tablets made of

Sublimate0.0075 grams.

Thymol0.0075 "

The method of using was to completely devitalize the pulp, open up the chamber, clean it, and apply the tablet, crushing it with an amalgam burnisher. Then moisten with water and cover with a layer of gold foil and fill immediately with amalgam or cement. While statistics would seem to favor this practice the essayist truly says that time is the only test, and that five or ten years will be required for a definite conclusion. Few cases should be experimented with for the first year or two, and then only such as would otherwise be lost.

In the discussion of this paper Dr. Abbott, of New York, said that there was only one condition that ever presented itself where he considered it necessary to apply a devitalizing agent, and that was where he could not stop pain. He had used arsenic perhaps three or four times in the last fifteen years. When he encounters

pulpless teeth he opens them up and cleanses thoroughly with a 1:10000 solution of bichloride of mercury. Then he fills the canals with oxychloride of zinc in which is placed a drop of bichloride of mercury 1:2000. He always fills the canals at the same sitting unless there is a sensitiveness of the tooth on pressure. After filling, the gum is painted with a solution of concentrated tincture of aconite root and tincture of iodine.

Dr. George Cunningham, of Cambridge, England, said he had treated a limited number of cases according to Dr. Miller's plan and had been quite successful, but admitted that there must necessarily follow a certain percentage of failures. He felt it would be of great advantage to poor people if our treatment could be shortened.

"AMONG THE ANCIENT HAWAIIANS," By Dr. J. M. Whitney, Honolulu, H. I.

[This paper deals with a subject of so much importance to the profession, and presents such an array of facts which tend to controvert popular opinion; and it is withal so tersely written, so interesting and devoid of verbiage, that in order to give an adequate idea of its contents it is deemed necessary to print it in full.—ED.]

"To the thoughtful and conscientious dental student and practitioner there must certainly arise questions to which he may look in vain for satisfactory answers in his common surroundings. He sees the ravages of dental caries and other diseases so almost universal in our day, and he asks: Is this a necessary evil to which all mankind is subject, or is it the result of artificial life and varied foods to which our modern civilization binds us? Is dental irregularity due, as some claim, to the mixture of races, and if we could find a people, homogeneous and simple, would these conditions exist? Is it true that, as mankind advances in the stage of being, the third molar is to become gradually eliminated? What is the normal position of adjacent teeth in relation to each other? What relation has the kind of food we use to the building up of dental structure?

We all know the difficulty, amid the complications of modern hygienic conditions, of answering these important questions to our own satisfaction. But if we can examine the dental organs of a simple and isolated people not affected by the vices and diseases, which are surely not a necessary contingent of civilization,

but which are sure to follow in its train, we may draw some conclusions which will throw much light on our problems. It would be difficult indeed for most of us to find living subjects in any number meeting these requirements. But fortunately the bony structures are preserved long after the owners of them have passed beyond mortal ken, and if we can obtain the crania, especially, of people who lived upon the earth ages ago, when wants were few and means of supplying them were correspondingly limited, our study of their dental conditions will certainly be interesting and ought to be instructive.

I consider myself especially fortunate in living in a land where both of these requirements are met. First, the native Hawaiian people, until within a hundred years, lived isolated and unknown to the great world, therefore their habits are simple and their wants and opportunities were few. Second, their modes of burial were such that it is possible with comparative ease to obtain some knowledge of their primitive conditions.

"The most isolated place on the globe," that is what Professor Alexander, the learned historian and ethnologist, says of the Hawaiian Islands. Two thousand miles from the Pacific coast of America, equally distant from the Micronesian, Samoan and Tahitian groups, the nearest inhabited islands, and more than twice as far from the east coast of China and Australia, they occupy a unique position on the map of the world.

About the year 500 of the Christian era, a boatload of men and women drifted to those shores either from the Malay archipelago or from one of the southern islands which had previously been settled by Malays. Except a short period of intercourse between the Pacific islands in the eleventh and twelfth centuries, those islands were scarcely known to the world until their discovery by Captain Cook about a hundred years ago. Even the slight intercourse that may have existed during these twelve centuries must have been among kindred races on the Tahitian and Marquesan Islands, so that practically this people (until within a hundred years) had not changed their race characteristics nor their habits of life during the 1,200 years of their existence. Fortunately enough of their history and customs have been preserved to give us a good idea of many of their characteristics, their food, etc. They were of medium height, rarely reaching six feet, with

heavy, strong bones, their crania large and thick. Their employments were tilling the soil, fishing and warring. Their games were hurling the spear, riding the surf, board-boxing, wrestling and other exercises, requiring great bodily strength and courage.

The climate at the seashore averages 75° , with slight variation from day to day, not varying more than 30° during the year, while, as one ascends the lofty mountains with which the country abounds, any climate may be found to one of perpetual snow. Thus excessive heat is never found and vigor of body can be maintained. In the former days of which we have been speaking such diseases as typhus, typhoid, malarial and scarlet fevers, whooping cough, measles, mumps, small pox, syphilis and leprosy were unknown. Disease of the alimentary canal and of the lungs were the most prevalent troubles.

Their animal food consisted mainly of fish, with which the sea abounds. Domestic fowls were common, with dogs and swine, both of which were choice articles of food. Of vegetable foods the principal then as now was the *taro* (*colocasia antiquorum*), which is the Hawaiian "staff of life." From it is made the *poi*, an acid paste, without which a meal is never quite satisfying. They also had yams, sweet potatoes and sugar-cane. Their common fruits were cocoanuts, bananas, bread fruit, (when cooked resembling sweet potato), and *ohia* or mountain apple. Their habits of eating were most irregular, often neglecting to supply themselves with food for several days and then gorging themselves at any hour of the day or night.

With the incoming of civilization, of course many of these conditions have changed. Though *poi* and fish are still the favorite articles of food of the native people, they have added to these many acid and sub-acid vegetables and fruits, with meat, fine flour, etc.

The second peculiarity of this people, rendering a knowledge of their early physical conditions possible, is their modes of burying their dead. The most ancient and favorite of these places of interment were in the old lava caves with which the island of Hawaii particularly abounds. A lava stream flowing from some opening on the mountain side would cool first on the surface, leaving the still flowing lava within to empty itself on the country below, and thus a long irregular cave of varying dimensions would

be formed. Many of these open from mountain sides and often from apparently inaccessible precipices. The ancient Hawaiians were very superstitious; the ghost of the dead was supposed to haunt the body long after death, and the friends of the dead anxiously sought the most remote and inaccessible places for depositing their bodies. The islands were teeming with people, and some of these caves are piled many feet deep with the bones of the ancient dead. No wind nor moisture ever reaches them, and the bones are as perfectly preserved as in our most carefully kept cabinets, after probably hundreds of years since their interment. But the natives even now guard the burying places of their ancestors with most jealous care, and it is not easy even to one familiar with them and their language to obtain access to these ancient sepulchres.

The other mode of burial to which I referred, and which I consider to be much more recent than that of the caves, was in the sand of the seashore. Until within a comparatively few years, specimens of crania and other bones from these burying grounds could be obtained readily in many places. Six or eight miles from Honolulu there was such a place twenty years ago, where for several miles on the seashore these human remains lay bleaching in hundreds under the tropical sun, until they had attained the color and texture of ivory. I have seen several similar places on the island of *Oahu* and on *Kauai* particularly, but they have ceased to exist. In some places the grass has grown completely over the sand mounds, and cattle pasture over whatever bones may remain buried beneath. In others the native people, jealous of their removal, have taken care to break and demolish the skulls, thus rendering them useless. And the South Sea Island laborers have sought everywhere for the skulls and removed the teeth for the purpose of making necklaces of them, of which they are very fond.

Realizing more the value of these ancient remains now that they are so difficult to obtain, I recently spent a week on a journey to the island of Hawaii for the purpose of visiting some of these lava caves, and securing, if possible, some of their treasures. I was fortunate in being able to obtain the assistance of a friend, whose knowledge of the native people and their language made him especially valuable, and I may say indispensable to my suc-

cess. A voyage of perhaps 200 miles from Honolulu brought us to the vicinity of the caves. Providing ourselves with candles, stout cord, etc., we at once engaged the service of an old native, who claimed to know all about the object of our search, and spent the first day in a vain endeavor to find the ancient cave. Whether the native knew less than he had professed, or whether at the last his courage failed, and he feared the result of guiding us aright, we did not know, but we suspected the latter reason was the true one.

The next day we secured two guides, and after riding many miles over rough, lava-covered land, we reached a spot which the guides pointed to as the entrance to a burial cave. It was near the seashore, far from any human dwelling, and from any place that could support a habitation. We could not believe at first that an opening could exist there large enough to admit a man's body. But with much labor we succeeded in removing the rocks so that by considerable effort we were able to force ourselves through. Leaving our unwilling guides at the entrance, we fastened a cord securely to the opening of the cave, lighted our candles, and proceeded to work our way down. Descending among the rocks until we were at least fifty feet below the surface, we suddenly entered a large room, perhaps forty feet high. There were no bodies here, but opening from this room on several sides there were low, narrow passages. Entering one of these, we followed it for perhaps a quarter of a mile. Part of the way we were obliged to crawl with great difficulty through the narrow tunnel. We were suddenly rewarded by again finding ourselves in a large room, and surrounded on every side by the objects of our search. Near the entrance some of the bodies lay as if hastily deposited, but most of them were laid away with care, some upon shelves partly made with sticks laid on the rock at the side of the cave, *more* in an opening at the side, which the remains of a stone wall showed to have been at some time walled off from the rest of the cave, while the dim light of our candles showed us several openings in different directions, which doubtless led to other similar burial caves. The knees were usually drawn up to the breast, tied with a cord, and the whole wrapped in many folds of the native cloth or *tapa*. By the side of each had apparently been left some food, and perhaps his fish-hook or spear, that he might not want

for food in his future home. The air being very dry, and perhaps having some antiseptic property, many of the bodies were completely mummified. Deep dust lay upon everything, and the stillness of death was over all. We could easily imagine with what awe the friends of those lying here had crept down at night and laid away their dead, for the greatest secrecy must be observed, so that no one could ever find them. "I do not wish," said a dying chief, "that my bones should be made into arrows to shoot mice with, or into fish-hooks."

We secured as many specimens of *crania* only as we were able to carry, packing them in bags. It was growing dark when we emerged from the cave, and when our natives who were waiting outside saw our bags of bones and realized that they must help us to carry them home, they were in utter consternation. It was with difficulty that they could be persuaded to place them upon their horses, and then, regardless of us, of road or path, they took the shortest way home as fast as their horses could carry them, not daring to look behind lest they should see the pursuing ghosts of their ancestors; leaving us to pick our way as best we could over the rocks in the dark, without even a path, the eight or ten miles to our lodging place.

We have been taught that primitive peoples, living in simple conditions, were in a great measure free from dental caries as we see it in the mouth of our patients, and that many of the forms of dental disease with which we have to contend, were with them wholly unknown. This seems to me a mistaken teaching as far as may be learned from these records. An exceptional opportunity of becoming acquainted with the *crania* of the ancient people of those islands during the twenty-four years of my residence there, has convinced me that both in the case of those buried in the caves, and of those more recent in the sand, not more than 25 per cent have been free from caries, irregularity or disease. Indeed, I think I have discovered every form of dental disease known to our practice; dental caries in all its many types, necrosis of the teeth, erosion, alveolar abscess, pyorrhœa alveolaris, disease of the antrum of Highmore, necrosis of maxillary, ankylosis of the jaw, salivary calculus, etc. Here was a well developed osseous system; the individual was trained to exercise of the kind that would develop every part of the structure, living upon an

abundance of the simplest yet the most nutritious and bone developing of foods that would not cling to the teeth, but would exercise and clean them, with not an element lacking required by our present knowledge, and yet the same dental diseases which we suffer burdened the lives of the ancient Hawaiians.

While this is true, I have been interested to find that the teeth of those who died before civilization had introduced to the people peculiar constitutional diseases, acid fruits and vegetables, fine flour and varied foods, were much less seriously attacked by disease than afterwards. As a general statement the teeth would be found clean, and when caries existed it was here and there in teeth of both maxillæ and on both sides, but not so pervading as found in the more recent crania, or in the mouths especially of the young of the present time.

We have often accounted for the irregularity of teeth found so common among Americans, by the mixture of races of which our nation is composed. We say that the wide teeth of the large jaw of one race, being crowded into the narrow jaw of another race with which it has mingled would of necessity produce an irregular arch. But here is a people, isolated from all others for at least 1400 years, with no admixture of races; yet irregularity of the teeth of both maxillæ was almost as common as it is among the mixed races of today. It would be difficult to give a good reason why a fixed type for the mouth of this people should not have existed a thousand years ago, and that all, with rare exceptions, should have been modeled from it, had nature designed that there should be absolute uniformity in her work.

Among the crania I have examined I have noticed what seemed to be somewhat fixed as a type, that the teeth are set closely together and well rounded, and that the dense part of the enamel, near the cutting edge or grinding surface, strikes its fellow at that point, the whole being held firmly together by the buttressed third molar.

Perhaps next to dental caries, the greatest source of oral disorders among these people was the irregularity of the third molar, often producing in them as serious consequences as with us of the present time, while its failure to erupt was nearly or quite as common as we find it in our daily practice. So that we cannot argue from these remains, at least, that the coming man is to be deprived of this useful organ.

The relation of food and disease to the health of the dental organs is strongly brought out as we study the changes shown in the teeth of those buried in the oldest caves, and so down through the more recent burials in the sand; then of those who were the old people a quarter of a century ago, whose childhood was passed before civilization had touched their life habits, and their grandchildren who are now in our schools. These children, as shown by actual examination, have but little better teeth than their white school-fellows. Their fathers and mothers may have better teeth than the children, but it would be an exception if *they* had not been to the government physician and had one or more teeth removed for relief from odontalgia, while the grand-parents, the old men and women whom I found when I first went to the islands, had teeth approximating those found in the old caves, though not as good.

I lay much of this very great change of the many forms of disease that have weakened their constitution, to fine flour that has become a part of their diet, and eaten in the form of crackers or hard bread clings to the teeth, to the many acid fruits, such as tamarinds, guavas, limes, etc., to which they have constant access, and to spending their childhood and youth in the schoolroom instead of wading and swimming in the warm sea, eating raw the fish and shell fish which they have caught, chewing sugar-cane and stripping off with their teeth the fibrous covering of the cocoanut."

DISCUSSION.—Dr. C. N. Pierce, of Philadelphia, raised the question as to how much the degeneration in teeth and the development of brain structure exhibited in these skulls is due to the recognized isolation of the race. The absence of the third molar in many of the skulls shown proves that the modification in number and structure of the teeth dates back to these people, and anthropologists tell us that two hundred thousand years is not too long to look for changes of this nature. We have one peculiarity here that we do not find at the present day—the large jaw with ample space but no third molar. The skulls dating back 500 or 700 years have a heavy jaw and wide ramus—far in excess of those found to day. Another peculiarity in ancient skulls is the tendency toward redevelopment of the process to take the place of lost teeth. In one case here "where the upper bicuspid

and cuspid and first molar had been lost, the lower jaw has retained the teeth and the friction in mastication of the lower teeth upon the upper process has developed a sharp incisive process." This to a certain extent has taken place of the teeth. In modern jaws the general extraction of the teeth and insertion of plates by dentists prevents this. The presence of dental diseases indicated by these skulls shows that they existed then as they do today.

The International Dental Journal for February, 1895.

In a paper read before the Central Dental Association of northern New Jersey, Albert E. Woolf, of New York has the following to say of "the electrical disinfectant," called Electrozone. Electrozone is prepared by passing a current of electricity through sea-water, thus electrizing it. In sea-water are to be found chloride of sodium, chloride of magnesium, and chloride of potassium, also some bromides and iodides. In passing an electric current through the solution, the chloride of sodium is decomposed thus—chlorine and oxygen are liberated at the positive pole—the base sodium being deposited at the negative, the hydrogen escaping. Chlorine and oxygen enter into the combination of the base and form hypochlorite. The same being the case with the magnesium and potassium. Thus the hypochlorite of sodium, of potassium, and of magnesium are produced by the decomposition of sea-water with electricity. Experiments were made with bichloride of mercury, carbolic acid, and sulphurous acid, with the result that they were found to be non-germicides, particularly in the case of spore-germs, and only rendering them inactive for the time being, while the electrical disinfectant decomposed them entirely. Experiments made by bacteriologists show the destruction of germ life by electrozone to be almost instantaneous; while, with the other so-called disinfectants some time is necessary to render them even inactive. It is no longer a disputed question as to whether ozone is found by the decomposition of electrozone in presence of organic matter. Hyperchlorites in contact with an organic body are split up; the chlorine, because of its affinity for hydrogen, will unite with that element in the organic body, liberating therefrom one atom of oxygen. It also unites with the hydrogen of the moisture surrounding the body, liberating another atom of oxygen, and one atom is liber

ated from the hyperchlorite. Thus three atoms of nascent oxygen are liberated which is ozone. Ozone is acknowledged to be as powerful an oxidizer as any discovered. The motion of germs under the microscope ceases instantly when brought in contact with electrozone, because the organic matter has been deprived of one of its elements. This is followed by the oxidizing action which results in destruction of life and disintegration of the germ. I know of no other disinfectant whose action on germs is similar to this. The first use of the electrical disinfectant on a large scale was the disinfection of the sewage of Brewster's, New York. It had been dumped on a marshy flat, and from the action of the sun had caused much sickness; diphtheria, typhoid fever, typhoid malaria, scarlet fever, and kindred diseases were prevalent. A plant was erected and the sewage treated, and from subsequent tests was found to be entirely innocuous. The effluent which ran into the drinking water of New York was entirely free from contamination. A test of the sewage was made with iodide of potassium paper which was turned black, showing a surplus of gases over what were necessary to sterilize it. It was also used for the disinfection of the fermenting garbage of New York on Riker's Island, with equally good results. Electrozone is non-poisonous, and may be swallowed in comparatively large quantities without causing any bad effects. In cases of odontalgia, the application of specially prepared electrozone will stop the pain, no matter how severe it may be. If one would rinse the mouth night and morning with it, all germs that reach the teeth would be killed. It has been successfully used in the treatment of cases of carbuncles, typhoid fever, diphtheria, cancer, eczema, tuberculosis of the rectum, ulcer; and consumptives have been much benefited—the expectoration being largely reduced.

An article by F. T. Van Woert, M. D. S., of Brooklyn, on '*Sulphuric Acid and Peroxide of Sodium in the Treatment of Pulpless Teeth*,' in the use of which he agrees with Dr. Callahan, as is stated in the article. He says:

"Sulphuric acid is very valuable in bringing to light nerve-canals that would never be found were it not for its use. The loss of many valuable teeth is caused by the failure of opening and sterilizing roots, which in some cases is utterly impossible, but we claim that by the use of the following treatment many hopeless

cases are mastered and hundreds of teeth saved which would otherwise be lost." A supposed case—a lower molar in which the pulp has been destroyed: Adjust the rubber dam and open the pulp chamber freely. Take a discarded broach, bent at nearly right angles, wind a little cotton about it tightly, with this place a drop or two of the acid solution upon the dead pulp. This by dehydration will toughen the pulp so it is easily removed. Now place a drop of the solution over the entrance to each canal, and with a No. 5 Donaldson nerve-canal cleaner enter the canal carefully with a pumping motion; the acid will follow closely and destroy all septic matter. Continue this process until a slight sensation at the apex of the root is experienced by the patient. Treat all the canals in the same manner. With a drop syringe fill the cavity with a saturated solution of bicarbonate of soda; this in contact with the acid, liberates carbonic acid gas in such quantity that the effervescence carries the debris out of the canals and cavity onto the rubber dam. Cleanse the canal with sterilized water, alcohol or peroxide, which leaves them white and clean. By using more acid and a coarser broach, the canals may be enlarged. Dry thoroughly with paper points, alcohol, hot air, etc., which processes leave them thoroughly opened, perfectly clean and aseptic; and they may be further treated or filled as desired. If unsuccessful in cleansing the canals by this means, treat them with a saturated solution of sodium peroxide and seal for twenty-four to forty-eight hours, when they may be washed, dried, and filled.

To make a stable saturated solution of sodium peroxide, take a tumbler half full of distilled water, place in a large dish, and pour all the water around it possible without floating the glass. Add the sodium peroxide, finely powdered, in small quantities, about as much as can be held on the large blade of a pocket knife, sifting the powder on the water. This amount should not be added oftener than every half hour. Continue this until the solution begins to look opaque. After standing over night it is ready for use. This solution will not disintegrate tooth substance, and may be kept in a glass stoppered bottle, in a cool place for a long time. The use of sulphuric acid thus is void of danger for the following reasons: 1. Because the action of the acid is self-limiting on dentine. 2. It is a pronounced germ-

icide. 3. The acid acts upon diseased tissue with far greater vigor than on healthy. 4. The destroying of the diseased tissue in this way leaves a fresh aseptic surface. 5. An aseptic wound will heal itself in any part of the body if properly closed."

In '*A Note on Hydrogen Dioxide as Furnished to Practicing Dentists*', read before the Odontological Society of Penn., Henry Leffmann, M. D., D. D. S., says: "While there are several excellent brands of hydrogen dioxide in the market, there are also many poor ones. The reputation of a house is no guarantee, nor is the price. Two samples from Merck's contained almost no dioxide. A sample which claimed as a special merit the small amount of fixed solids showed the highest in the list. Recently my attention has been called to an English brand much in favor with some physicians. I obtained a fresh sample (four ounce bottle, retailing at one dollar), and found it to be of poor quality. Hydrogen dioxide solution should be a clear fluid containing sufficient amount of the dioxide to give ten volumes of oxygen when completely decomposed. Fifty cubic centimetres of it should not require more than about five cubic centimetres of decinormal sodium hydroxide to neutralize the acid present. It should keep well in a moderately cool place. On opening a fresh sample no distinct explosion should occur, and when poured into a beaker, very little effervescence should be noted. The assay for volume strength is made by means of a solution of potassium permanganate, which will last a long while, and but one cubic centimetre of a given sample of hydrogen dioxide is required for the test. A ten volume solution of excellent keeping quality is made by the Oakland Chemical Company, and may be obtained at about sixty cents a pint. Such a solution will keep in an office for weeks without appreciable loss if a little care be taken not to place it in a warm place.

"I give the following figures as to hydrogen dioxide solution sold to dentists:"

TESTS ABOUT FEBRUARY 16, 1894.

	Volumes.
Prescription from A. Robbin's drug store, Eleventh and Race streets,	10.9
Pre-scription from drug store at Frankford and Girard avenues.....	10.9
One-ounce bottle, S. S. White Dental Manufacturing Company.....	5.1
One-ounce bottle, S. S. White Dental Manufacturing Company, second sample	5.4
One-ounce bottle, G. Sibley.....	0.5
One-ounce bottle, H. D. Justi.....	1.4

RECENT TESTS.

Volumes.

One-ounce bottle, S. S. White Dental Company, first sample, November 10.....	5.04
One-ounce bottle, S. S. White Dental Company, second sample, October 30.....	5.3
One-ounce bottle, H. D. Justi, first sample, November 10.....	.56
One-ounce bottle H. D. Justi, second sample, November 10.....	.56
Sample of Marchand's purchased at G. Sibley's October 30.....	12.04
Samples of McKesson & Robbin's hydrozone, at least six months old, kept in photographic dark room, and opened today, November 10, no internal pressure, contains.....	9.1
Samples of McKesson & Robbin's pyrozone that has been standing in laboratory for at least six months, opened occasionally, showed..	9.1
Pyrozone, when fresh, contains almost exactly.....	10.

In a paper on '*The Correction of Injury Resulting from Extraction*,' read before the New York Odontological Society, by S. E. Davenport, D. D. S., M. D. S., he says; "No inflexible rules can be given governing either the choice of filling material or methods for the correction of irregularities, but the decision must be based upon existing circumstances and conditions. A prominent dentist advised the extraction of the sixth year molars, for the correction of three over-crowded mouths, differing much in typical characteristics, adding that he saw but few crowded arches which similar treatment would not correct." The extraction of teeth for the purpose of regulation should never be done without first taking casts, so that the relations existing between the lingual and palatal surfaces of the teeth may be observed, and by studying these casts, the dentist may learn many principles, and obtain a greater knowledge of nature's laws, which would cause him to be less frequently a murderer of the dental organs. In extraction of these sixth-year molars, mastication is often interfered with, thus causing dyspepsia. A case is given where a young man had been deprived of three teeth in order to correct an irregularity, thus leaving no points of contact other than the occlusion of the wisdom-teeth, and of the central and lateral incisors. The imperfect mastication had brought on nervous dyspepsia, when I saw him five years later, and as the wisdom teeth were fully erupted, there was no hope that either growth or development would ever cause such occlusion of the bicuspid and twelfth-year molars as would enable him to properly masticate. So, after expanding the upper arch slightly in the twelfth-year molar and second bicuspid

region, for the purpose of bringing about a better relation between the upper and lower teeth, it was decided to build up largely with gold the lower twelfth-year molars, and to build down the four upper bicuspid and the upper twelfth-year molars. The result was so satisfactory that almost immediately the habit of masticating with the front teeth became a thing of the past, and the remedies administered by a noted specialist became so efficacious that the dyspepsia was cured."

The Dental Cosmos for February, 1895.

"Popular Dental Education and the Newspaper," by J. C. Walton, D. D. S., Howell, Mich. This article is a plea for a better understanding of dentistry and its necessity by the public. The writer says, "There are millions of teeth being sacrificed because the masses do not know the possibilities of our art, while at the same time there are many of us impatiently sitting in our offices waiting for an opportunity to sell our services to those who need them. With a lack and a want of dental service on the one hand, and a lack and a want of employment on the other, matters are left to balance themselves somehow." He shows that much harm to the professional credit has been done in the past and is still being done by quacks and ignorant dentists, but that every self-respecting dentist should feel it his duty to correct it. He closes with a recommendation of the newspaper, under an editor created by each state society to select the matter sent in, as the best medium for the enlightenment of the public.

"Abscess of the Antrum of Highmore," by E. S. Hodgskin, M. D., Brooklyn. The writer says that abscess of the antrum is not common, and in nearly all cases comes from the teeth. The first symptom will be deep-seated pain, and swelling of the soft parts. On percussion there will be dullness and tenderness on the inflamed sides, accompanied by the temperature and depression associated with the formation of pus. In acute cases caused by a carious tooth, one tooth will be found, which when struck gives a duller sound than the others, and this tooth will be altered in color. Before pus has formed, it may be aborted by cold and local extraction of blood. The later treatment consists of drainage and antiseptic douches. Rubber tubing is the best for a drain, and peroxide of hydrogen for an antiseptic. The article closes

with a warning to keep the hands and instruments in an antiseptic condition, and not to continue the abortive treatment too long. Nearly all who took part in the discussion which followed agreed with Dr. Hodgskin's views, but a few took exception to the use of peroxide of hydrogen, full strength, as an antiseptic.

"Dental Therapeutics," by A. Ashley Faught, D. D. S., Philadelphia. Dr. Faught says that one-fourth of the dental literature of today concerns medicaments and their application to dental diseases, in contrast to one-thirteenth twenty years ago. That instead of prescribing drugs to repair a broken constitution, it would be better to guard against the break before it comes. An ounce of prevention, etc. That "tranquility of nerve" depends not only on a correct diet, but also on proper assimilation and elimination. As a solvent for uric-acid, a great disturbing element, he prefers ammonia salicylate to lithia carbonate, so often prescribed by physicians. For the other disturbing element, torpidity of the liver and resultant constipation, he prescribes a teaspoonful of cascara sagrada daily, and three or four glasses of water a day more than is customary. In the discussion following the paper was criticised as bearing too much on the field of the physician.

"Legal Restriction of Nostrums," editorial. The author of this commends the movement for the legislative prohibition of the use of nostrums in extracting or filling teeth. He says that since so many deaths have been and are almost daily reported from the use of cocaine preparations, it shows that if there is such a narrow margin of safety in the use of cocaine in accurately known doses, the use of a nostrum containing cocaine in an unknown quantity is almost criminal. Also, that the plea that the ethical dentist does not use nostrums does not relieve legitimate practitioners from obligations to see to it that unprofessional men do not use them, since their use is a disgrace to the whole dental profession.

The Dental Review for February, 1895.

"Arsenic," by Dr. A. G. Johnson; read before the Odontographic Society, December 10, 1894. The writer gives a formula for the devitalization of pulps, especially valuable where there is

inflammation and something exerting a local anæsthesia is needed:

Arsenious acid..... gr. 20

Hydrochlorate of cocaine..... gr. 25

Lanolin q. s. ft. paste.

Keep in large open mouth vessel.

He says that this preparation is invariably successful, and a second application is rarely needed. The operator is especially cautioned to see that the pulp is first relieved of as much inflammation as possible, and the following directions for doing so are given. Apply the dam; disinfect and dry the cavity; if pulp is congested, apply cocaine 20 per cent until obtunded; puncture pulp with sharp broach; wash cavity with cassia, then with peroxide of hydrogen, and dry; stop oozing with cotton saturated with carbolic acid. Now apply anodyne; place cotton saturated with eugenic acid over pulp, cotton over this, and cover the whole with gutta percha. After reducing inflammation as much as possible, devitalize. Adjust dam; wash tooth with alkaline solution; wash cavity with mild antiseptic and dry; if possible, secure exposure before placing devitalizing agent; take small portion of arsenic preparation and place over pulp; cover with folded bibulous paper; cover the whole with thin layer of cement mixed thin enough to run into cavity; let application remain at least twenty-four hours. The writer closes by saying "As a substitute for arsenic, cocaine will yet rank number one for pulp devitalization. In small tortuous canals, difficulty will be experienced in forcing the cocaine into the canals; but how much better, gentlemen, in such cases will it be to remove the bulbous portion of the pulp under this grand anæsthetic, leaving the fibers alive and healthy, ready to assume the function of nourishing the tooth, instead of devitalizing by arsenic and leaving the dead to take care of itself, which would be mere folly to assume."

"How can we convince our patients that we are humane?" by M. R. Harned, D. D. S.; read before the Northern Illinois Dental Society, October 17, 1894. The writer says that when a dentist first begins to practice, his main idea is to have his work mechanically correct, but after he practices and gains experience he should not forget that he is working on human beings, and should try to reduce the pain in operations as much as possible. If the dread of a dentist is not inborn, it is very early instilled by

those who have had dentistry done, and dentists should try and counteract this feeling. Some suggestions are given to this end: Make friends with a child if possible and gain his confidence, then keep it by never saying you will not hurt him unless you mean it. If he has a tooth to be extracted, either put a little cocaine on the gum, or squeeze the gum with the thumb and finger so as to benumb it. In extracting for an adult, assure him that the pain will be very slight, and either use the thumb and finger pressure, or a one per cent. solution of cocaine hypodermically. If in filling the dam has to be applied, rub a little cocaine on the gum; but if you have a saliva ejector, the dam need not be used nearly so often as it is. It is not always necessary to puncture the pulp and let it bleed before devitalizing; rinse out cavity with warm water, apply very little arsenic on cotton, press it as close as possible to pulp, protect with oil of cloves, oxide of zinc, and cover with cotton dipped in sandarac varnish. If patient returns shortly with unbearable ache, remove application and apply equal parts of aconite and carbolic acid to stop pain. Much unnecessary pain is given by previous separating of teeth; when patient comes for operation inject a little cocaine, apply wedge, double-bowed Ivory, Perry, or other separator, and do the work at once with no suffering to patient. Use a little cocaine where a clamp is needed to retain dam, and when fitting and setting a crown. "I do not like the expression 'painless dentistry,' nor do I believe in it, but I do believe in making operations as little painful as possible. Cocaine is the thing which, used with care and thoughtfulness, will in time overcome the idea of the inhumanity of dentists."

"Porcelain Faced Bicuspid Crown," by A. W. McCandless, D. D. S.; read before the Northern Illinois Dental Society, Oct. 17, 1894. The author does not claim that this method of making the crown is new, but as he was asked he gives a very full description of how to make it. Having properly prepared the root, fit a band thereto just as for a telescope or shell gold crown. Cut out buccal side of this ferrule about where porcelain facing is to be placed. Get perfect articulation, tack cusp to ferrule at farthest point from porcelain, then cut away gold of cusp down to point of cusp, approximating shape of porcelain face at that end. Grind facing and trim opening in gold that is to receive it, until fit is fairly accurate. When facing is ground to proper shape, a

little smaller than space, to allow for thickness of gold backing, bevel edges of porcelain all the way around, then when gold backing is thoroughly fitted, place tooth, backed with pure gold of thirty gage, in position. Catch gold backing to ferrule, cast with sticky wax, slip porcelain off, invest gold in long fibre asbestos moistened with water, leaving only enough gold exposed so that with a little solder backing it may be united to ferrule, remove investment, fill joints with wax where solder is to flow, fill whole interior of crown with plumbago paste so that solder will not flow where it should not, then complete soldering of joints and flow up enough solder to give proper contour to finish crown. Here a lower grade of solder is used for filling cusps. Slip porcelain facing to place, grind gold to proper shape and finish, and a perfect joint between backing and tooth should result. Remove facing and force to place, having a thin film of cement between gold and porcelain. When cement has set, carefully bend pins of tooth outward from each other to hold facing. For crowns use 22 carat gold, 28 gage, and 22 carat solder, with 14 carat solder in the cusps. When crown is finished and polished, have it plated with pure gold, which prevents tarnishing and improves the appearance. Many things commend this crown; natural appearance, strength, utility, etc.

"Our responsibilities," by M. L. Hanaford, D. S.; read before the Northern Illinois Dental Society, Oct. 17, 1894. The author of this article says that the discussing of such a theme publicly is very necessary, since dentists are isolated, and each one conducts his practice according to his own views. Too many operators, in their anxiety to do their work conscientiously and thoroughly, lose sight of the pain they inflict, and the strain they make on their patients' endurance. Dentists are responsible not only for the excellence of a given operation, but for a mistaken diagnosis, for the oversight of needed operations, and for the proper instruction of patients concerning hygienic and prophylactic measures. The too careful operator is very often responsible for the dread of anything relating to dentistry, since by his injudicious and needless labor he wears out the endurance and so prejudices the patient against all dental operations. "I have thus endeavored to show that we are responsible for the care and general welfare of the teeth of our patients, which includes not

only fidelity in the performance of given operations, but a correct and early diagnosis of every pathological condition of the oral cavity, and a proper instruction as to hygienic rules. Second, for the suiting of our operations to the time, purse, and power of endurance of a patient, especially the latter. Third, for the mental impression in regard to us as dentists, and our calling, which the patient carries with him out of our office door. I have said nothing of the dentist's responsibility to himself, which might include personal health as a duty, the confining of office attendance within reasonable limits, taking abundance of outdoor exercise, etc., or to the community in which he lives, which would prompt him to fair and honorable dealing, in which mushroom business success by short cut methods would have no part. In short, to be a good dentist or, as the lamented Atkinson used often to pray, "the best dentist in the world," requires an array of virtue and a strength of character most wonderfully comprehensive, toward which as our ideal, though we may strive ever so faithfully, there will still be other and greater possibilities before us."

The Dental Register for February, 1895.

"Harmony," by H. L. Ambler, D. D. S., M. D.; read before the Ohio State Dental Society, December, 1894. This article urges that as the practice of dentistry and medicine is interwoven and very intimate, so the relation and feeling between the dentist and physician should be of the friendliest nature. Neither should try to be independent of the other, and consultations will alter their ideas of each other, as well as relieve suffering. There are many cases both in dentistry and in medicine which result fatally, but which might have resulted differently had a physician or a dentist been consulted. There is too little attention paid to the study of medicine in the dental colleges, and too little to that of dentistry in the medical colleges. Children's diseases very often come from the condition of the teeth, and many disorders of the eye and nose can be traced to the same source. The teeth are nearly always the disturbing element in diseases of the antrum, and have even caused insanity, rheumatism, epilepsy, and neuralgia. With these facts before us, it is clear that no barrier should be placed by individuals or societies between the M. D. and D. D. S., and each should learn to consult and in a measure depend upon

the other. Those who took part in the discussion of this paper generally agreed with the writer, and they nearly all felt that there should be no disharmony between the two professions, but that there was not so much as formerly, nor so much as the article implied.

"The Teaching of Histology and Anatomy in Dental Colleges," by C. M. Wright, D. D. S.; read before the Ohio State Dental Society, December, 1894. The writer says that the study of anatomy in the dissecting room, and of histology in the laboratory has two things for its object. One is to let the student see the structure of the human body microscopically; the other is to train him in the manual art of cutting up tissues, so that they may be seen most advantageously. Now, why is it necessary for the student to have the manual work of dissecting and mounting? Can he not acquire all the factors he needs of morphology from seeing the dissections made by a skilled hand? Furthermore, the qualities of tissues are more easily studied in specimens made by an expert than in the crude cuttings of a student. So, would it not be better for the student to take the slides mounted by a expert, and use them in his microscope, together with text-books and the explanations of the teacher, rather than to spend his time mounting his own slides? Since it is not necessary for a man to hammer chips from a block of marble in order to cultivate his knowledge of sculpture, nor to grind up paint in order to become a connoisseur of paintings, so a student need not cut up sections of bone, muscle, and nerve for two months in order to become an histologist.

"The Teeth of our School Children; what can be done to save them?" by J. C. McCoy, M. D.; read at the American Medical Association, San Francisco, June, 1894. This article is written to show that the teeth of most school children are in a frightful condition, and that nothing is being done to preserve them. In one school where an examination was made, out of seven hundred pupils, from six to eighteen years of age, only fifty cleaned their teeth every day, and the majority of the rest did not even own a tooth brush. The cause of this state of affairs is ignorance on the part of the parents, and the neglect on the part of the children. Many people cannot afford to pay very much to have their children's teeth taken care of, and so instead of trying to instruct the

children how to preserve their teeth, they simply trust to nature and do nothing. The remedy is, for every dentist to teach the parents whenever he can the value and need of care for the teeth; for every dental society to appoint a competent committee to prepare for distribution among parents a manual on the care of the teeth, and for the same committee to induce the State Boards of Education to require the teachers in the public schools to teach the children in their classes the need and how to care for their teeth.

The Ohio Dental Journal for February, 1895.

"The Small Porcelain Furnace, Incidentally," by Grant Mitchell, D. D. S., Canton, Ohio. The writer gives a method for crowning badly broken down roots. Take a Logan crown of suitable shade, and grind to fill labial portion of root. Anneal at white heat a very thin piece of platinum foil, press over broken off crown, if it has been saved, and trim to exact shape, then transfer to root and puncture for insertion of dowel post. Work pink paraffine and wax till soft, place around pin of crown, immediately insert pin through opening of platinum into root, and firmly press to correct position. Wait until wax hardens somewhat, remove crown with wax and foil, and invest in plaster and powdered silex (eq. pts.), being careful to retain exact relation between foil and crown after wax is washed out with boiling water. Gradually fill space between foil and crown with Downie's porcelain enamel, and bake, if necessary, three times.

A method for retaining appliances is also given. "After the teeth have been regulated, make the retaining bands of platinum plate of suitable gauge, solder with pure gold, coat the labial surface with properly shaded enamel, and bake, and there should be no trouble from scaling off."

"The Use of Sulphuric Acid in the Treatment of Roots for Immediate Filling," by Chas. Welch, D. D. S., Wilmington, Ohio; read before the Ohio State Dental Society, December, 1894. The writer says that in the last year he has treated 103 cases, with the patients' ages varying from fourteen to seventy-five years, and under every condition from a recently extracted live pulp to a chronic abscessed tooth, and has been successful in all of them. He filled every tooth immediately after using sulphuric acid fifty per cent aqueous solution, except in cases of blind abscess with

pus in the root canal. These, after cleansing canal with acid, he filled it with glycerine and iodoform made into a paste, left it in a week, then removed and filled permanently.

His manner of treatment is: first, apply dam, open pulp chamber freely, soak pledget of cotton in sulphuric acid and place in chamber. Pump acid into canal to apex of root with a No. 5 Donaldson Canal Cleanser. When apex is reached patient will complain of pain, but no trouble will arise from acid going through foramen, as acid on cotton has killed bacteria. Second, with drop tube flood chamber with saturated solution bicarbonate of soda, which throws out debris, neutralizes acid, and cleanses and apparently whitens tooth. Then dry thoroughly with five per cent solution of pyrozone followed with hot air. Third, with a minim syringe flood canal with equal parts carbolic acid and iodine, followed with iodoform and glycerin, which force through root. Then use chlora-percha with a gutta-percha point, which finishes treatment, and tooth is ready for permanent filling. Those who took part in the discussion agreed with what Dr. Welch said, and Dr. J. R. Callahan emphasized the point of having the acid go through the foramen.

"Characteristics," by F. E. Battershell, D. D. S., New Philadelphia, Ohio; read before the Ohio State Dental Society, December, 1894. The writer of this article gives the characteristics by which the various professions are recognized, and says that a dentist should be known by a gentlemanly bearing, rather than by a miniature set of teeth or a naked, three-pronged molar hanging from his watch-chain; and by a cheerful, assuring voice, rather than by a display of much gold in the front teeth and a readiness to explain its presence there. He recommends that a dentist should abstain from the use of tea and coffee for the sake of his nerves, and especially from tobacco and liquor, as they are not only harmful, but very prejudicial to a professional reputation. And that a dentist should have a ready sympathy, much tact, and an absence of that which afflicts so many men bearing the title "D. D. S.," hypersensitiveness.

The Dental Headlight, January-March, 1895.

"Dental Education," by P. D. Houston, D. D. S., Lewisburg, Tenn.; read before the Nashville Academy of Medicine, October,

1894. In this paper the writer speaks of the progress made in dental science, and endeavors to show that no matter how well educated a dentist may be, if the people for whom he hopes to work are not educated up to the needs of good dentistry, there is more use for a teacher than for a dentist. He speaks of the great ignorance and fear of dentistry possessed by so many people, who neglect their teeth until they decay, and never have them fixed until the pain becomes unendurable. He suggests the following methods to remedy these faults and to educate the public. That articles be written for the daily papers and literary journals showing the necessity and possibilities of dentistry. That the dentists speak in the schools and seminaries when opportunities present themselves. And that efforts be made to have a text-book on the anatomy, physiology, hygiene, and the capabilities of operative and prosthetic dentistry introduced into all the public schools. "If the children of our land were taught these principles, it would be of inestimable value to them. It would make the dental profession more pleasant and profitable. By understanding the hygienic principles of the teeth, a great deal of money would be saved to the individual who might need dental work. The dentist would be saved from the necessity of lecturing so much to his patients, the patient would understand enough to know that the dentist was doing an honest job for him, and there would be more satisfaction for both parties."

Items of Interest for February, 1895.

"Dentistry in England," by Dr. D. W. Henderson, an English dentist, Mankato, Kan. This is a rather severe criticism of the methods used and the knowledge possessed by English dentists and doctors. The writer says that in this country each profession tends to its own business, and the doctor calls in a dentist when needed, and *vice versa*; but that in England the physicians try to practice both medicine and dentistry. Furthermore, that they have a great deal of political influence, which they use to hamper and keep down the students of dentistry. And that everything which England has in the way of advanced dentistry, such as continuous gum sets, gold fillings, etc., has been imported from America.

"Fractures of the Maxilla," by Dr. P. L. Haight, Little Falls,

N. Y. The symptoms are given: Crepitus, pain on opening and closing the mouth, swelling and inflammation, inability to masticate, and usually a marked irregularity of the teeth. The inferior maxilla may be fractured at any point, but most frequently near the mental foramen. Should the condyle be fractured, it will usually occur at its neck, and this is probably the fracture most to be dreaded. The treatment of these fractures is simple. Bring the parts into perfect apposition, and retain firmly till ossification is complete, which requires from two to four weeks, depending on age and condition of patient. Before taking impression always make thorough examination for splinters of bone, etc. Remove any fractured teeth or diseased roots, as their retention might interfere with a perfect union. Devitalize all exposed pulps or teeth which might ache. Take impression in wax or impression compound rather than plaster, for two reasons: First. The removal of the plaster impression is painful. Second. It is too good, for if tin foil is used on cast, the splint, when vulcanized, will fit teeth too closely, and require too much force to get it in place on teeth. It is better to remove impression before it becomes stiff. If done carefully and quickly put into cold water, the impression will be sufficiently perfect. Avoid tight bandages, and if possible, do not bandage at all, as a free flow of blood to injured parts is one secret of success. An antiseptic wash should be used by the patient two or three times a day.

The Pacific Coast Dentist for February, 1895.

"Crown and Bridge Work," by Dr. Wm. A. Cummings, D. D. S., Portland, Ore.; read before the Oregon State Dental Association. The writer said in crown-work the first thing to be considered was the root, which should be in the best possible condition, and that in the hurry to crown the root, the neglect to get this condition was the cause of many failures. Great care should be taken to select a crown for the eight anterior teeth, and except in a few peculiar cases, gold crowns should not be used for them. The dentist who places a gold crown on any of these teeth is regarded by the profession as lacking in artistic knowledge and good taste. The full gold crown is the simplest and strongest, and when it reproduces the contour of the original tooth, and fits the root perfectly, it is the best that can be used. Platinum is too nearly

the color of silver to make a satisfactory crown, and whether it resembles the tooth color more than gold is an open question. In making a Richmond crown two points must be considered; the preparation of the root, and the color. A Logan crown is not difficult to match for color, and is very good for the six anterior teeth. For the bicuspid the English tube teeth are very good. With a strong post and a burnished cap of platinum, the tube tooth secured to a pin with cement makes an excellent crown. All surfaces can be ground, and if the crown be broken it is easily replaced.

In making bridges, the writer said that too many men fail through lack of knowledge and experience, for since patients were willing to pay large fees for a bridge, dentists who knew nothing of bridge-work were tempted to experiment. A bridge should not be made too large, or more strain will be put upon the natural teeth than nature ever intended. Where more than one tooth is lost there is always considerable absorption, and in making artificial dentures great care should be taken to replace the absorbed process. One essential thing in a bridge is, that it shall be so constructed that, if it rests on the mucous membrane at all, the point of contact should be so small as to afford no lodgment for food. Bridges should be placed only in perfectly healthy mouths. When an anterior tooth is missing, place a Richmond crown on the tooth selected to carry the bridge, attach a plate tooth to it, and it makes an ideal permanent bridge. A tooth should not be banded to carry one end of a bridge, or to support the bridge itself, as the band will almost always work loose and destroy the usefulness of the teeth encircled. A band cannot be fitted close enough around a tooth to exclude the fluids of the mouth and prevent the cement from washing out, thus furnishing a lodging-place for food and causing decay.

"Crowning Badly Decayed Roots," by W. C. Logan, D. D. S., Astoria, Ore.; read before the Oregon State Dental Association. The writer says that many roots are sacrificed, which might be saved, and gives the means he employed in a few cases. A right superior second bicuspid had the distal margin decayed well down in the alveolus. The fungous gum was pressed aside and the decay removed. On nearing the root-walls, much pain was caused, showing how little dentine was left. After decay was removed, a

piece of gutta-percha base-plate was softened, dipped in campho-phenique and carried to the apex, followed by a pledget of cotton, and the patient was told to rest a few minutes. Then the root was thoroughly dried with hot air, cement was mixed and pressed well up to the gutta-percha, followed immediately by amalgam, which was built down one-sixteenth below the gum. When amalgam had set sufficiently, it and the edge of the root were beveled with a corundum disk. A gold crown was adjusted the next day, and now at the end of three years it is as sound as when put on.——A right superior central, the crown of which had been lost twelve years ago, and soon after an abscess formed at the apex. Treatments gave only temporary relief, so a method was used for crowning which would strengthen the shell of the root and leave the tooth so that it could be treated, if necessary, without removing the crown. All decay was removed, and two tubes were made, one to fit the other. The larger was fitted to the canal, and combination filling was built up around it as before described, thus giving a solid foundation to work on. A ferrule was made and put in place, then with a spear-point drill a hole was made through the ferrule into large tube already in place. The smaller tube was then placed in position with the end well up to the apex, the other end exposed about one-quarter of an inch, an impression taken, varnished, soaped and poured with marble dust and plaster. The model was cut out carefully, as the marble dust and plaster are very brittle. A plate tooth was fitted and waxed into position with enough marble dust and plaster to cover face of same. After drying, the case was soldered, finished and put into position, cotton was dipped in campho-phenique and carried into tube to apex of root, and the opening on the lingual surface was sealed up with gutta-percha. This case has been in place two years and has given no trouble.——A right upper second bicuspid, the owner of which, a lady, did not wish a gold crown. The root was prepared as in second case with a tube set in, a ferrule with solid pin was used, and a crown with a porcelain facing and gold cusps was made in the usual way and mounted, and now is doing good service.

"Treatment of Pulpless Teeth," by A. T. Hyde, D. D. S., Merced, Cal. The writer believes in iodoform used in a vaporizer, and says he has had great success. "My method of treating

either the condition known as alveolar abscess, or putrescent pulp-canals, or recently devitalized pulps, is to gain thorough access to the pulp-chamber and then with a broach carefully clean the canals, syringing with water as hot as can be borne by the patient, and sometimes adding a few drops of carbolic acid to the water. After drying the cavity and canals with cotton and protecting the tooth from moisture, I put a small quantity of iodoform (crystal) into the chamber of the vaporizer, heat and drive the fumes into the root-canals. If I can have the patient return for another treatment I put in a dressing of eucalyptol and iodoform, seal the cavity, and the next time I treat with the vaporizer only and fill both canals and tooth permanently. If patient cannot return, I fill immediately, no matter how sore the tooth may be, and find I have no trouble. If there is a chronic abscess I sometimes lance from the outside and inject a few drops of aromatic sulphuric acid, or cauterize with carbolic acid. One may use any method he chooses in treating, finishing with the vaporizer, and satisfactory results can be obtained. I have personal knowledge of cases in which the canals were improperly cleaned, in fact scarcely touched, and in spite of this there has been no trouble. The vaporized iodoform seems to form a complete coating upon the sides of the canals clear to the apex, and to fill the open tubuli. This is mastering a great difficulty for us, as we often find much trouble in getting most of our medicines far enough into the small canals to be of much benefit. It can also be used with good effect in capping pulps. In the use of the vaporizer I wish to advise the operator to place but a very small quantity of the crystals in the chamber at a time, as a deposit so heavy as to be troublesome to the patient may be made, in so far as it may escape into the mouth."

The Southern Dental Journal and Luminary for February, 1895.

"Regarding young men who contemplate entering the profession," editorial. This article makes a plea to practicing professional men to advise with young men who are contemplating entering a profession. "Practitioners of a profession might many times warn and discourage young men contemplating its study, whose talents they know to be unsuited. It is true such advice is often of no avail because misapprehended. In many cases, how-

ever, good sense and judgment would prevail, and a valuable life-work be made useful by diverting it to its proper channel." It also shows how a great amount of harm is done to the credit and reputation of a profession by those who are not fitted for the work they have taken up, and so have no enthusiasm and often very little interest in it.

The Journal of the British Dental Association for February, 1895.

There is an announcement from a Spanish journal of the death of an army officer which occurred in Madrid from an overdose of cocaine, injected to produce anæsthesia during the extraction of a tooth.

An account is also given from the *Lancet* of the death of a woman to whom chloroform was administered at one of the English hospitals for the extraction of a carious wisdom tooth. The surgeon gave chloroform because he thought that no other anæsthetic would overcome the trismus induced by the aching tooth.

The Dental Record for February, 1895; London.

This journal reports the death of a young woman in London, to whom nitrous oxide gas was administered for the extraction of a tooth. At the inquest it was proven that the deceased wore corsets which were fully five inches too small for her, and that death resulted from that cause, so the jury exonerated the dentist.

Proceedings of the Chicago Dental Society.

Meeting, Dec. 4, 1894, Dr. A. W. Harlan read a paper on "Porcelain Inlays."

"In presenting a few thoughts on porcelain inlays, it is not my purpose to describe the manufacture of metallic, vulcanite, or glass inlays. By the term 'porcelain,' I do not mean porcelain baked on to platinum or iridium, but simply porcelain. There are three methods of making such inlays that I have practised. There may be others, but I have not tried them.

"The first method is to select a piece of tooth of the proper color, and grind it to fit the cavity, which has been suitably shaped. To facilitate the grinding and fitting, I take an impression of the cavity with plaster of Paris or modelling compound

and get the outline of the cavity from the model. The piece of porcelain is then ground as nearly the shape of the cavity as possible in order not to tire the patient by repeated trials in the mouth. A little pure spruce gum pressed in the cavity will tell you from time to time how nearly the piece of porcelain is fitted to the cavity. When the approximation is as perfect as it can be made, the surface of the inlay facing the bottom of the cavity is roughened with discs, and two under-cuts are made so that it will not be disturbed by friction. The rubber dam is adjusted, the cavity dried, and the piece is set with rather thin oxy-phosphate. Great care is necessary to have the thickness of the inlay a little less than the depth of the cavity. Inlays may be set with Canada balsam, if it is very thick, but generally it is better to use a thin oxy-phosphate or oxy-sulphate of zinc. Bits of porcelain with a little groove around the under surface, like a button, can be used if a cavity can be made deep enough, and may be adapted to incisors, cuspids, and bicuspid with little trouble. However, the neatest method of using porcelain is to take a rod and cement it into a mandrel, and grind it into the cavity, keeping it wet, and using at the last finely powdered Arkansas stone. Any exposed face of a tooth of suitable color, may be used for all cavities that can be made round. Canada balsam can be used to set these rods, but the fit must be very accurate, or the inlay will soon drop out. I generally set them with cement, and grind down the projecting portion subsequently. Some of these inlays have been in use for four years, and a few, made from pieces of teeth, are in excellent order after seven years. I have ground the ends off a plain tooth, leaving the pins in place, and fixed it to the end of an incisor by drilling holes in the living tooth opposite the pins, splitting the ends of the pins and cementing directly to the tooth's end, and had them wear very well. If the contour of the fitted end of the artificial tooth is too thick, it can afterward be ground down and polished. Do not use any polishing powder likely to stain any exposed portion of the cement fastening. I have seen porcelain inlays fitted accurately in the ends of molars by grinding down diatoric or other porcelain crowns, and imbedding them in cement or gutta-percha. Many cases of buccal cavities in molars would be better treated by setting porcelain in them, even though they did not fit accurately, than having them

filled with amalgam, or filling them poorly with gold. A plea is needed at this time for artistic appearance of the teeth, on account of the hideous and too rich golden appearance of incisor and cuspid shells that face us in parlors, places of amusement, churches, public conveyances, and even in the rural districts. Gold, or gold and platinum, is very conspicuous in an exposed tooth when the lips are parted, and for this reason I prefer using inlays where it is possible, if they can be made to suit in color and durability."

Dr. J. W. Wassall opened the discussion, and said that he agreed with the speaker and thought there was a great need and a great opportunity for something which would take the place of gold fillings in exposed teeth.

Dr. A. E. Matteson spoke of the difficulty of matching the color. He considered a glazed body worthless. He thought a Hill stopping dissolved into thin sheets with the oil of cajeput was the best cement for retaining inlays.

Dr. A. C. Hewitt gave an instance of some inlays he inserted ten years ago, which were just as good as when put in. He obtained an accurate fit by using the English body, cutting it in the shape and thickness desired. It was then attached with shellac to a piece of wood, with the face of inlay toward wood. After cavity was shaped and inlay nearly approximated, it was held on stick, then baked portion was covered with wax, and the wax applied to cavity and left there until it cooled a little. When withdrawn a perfect impression was left on side of inlay, and by holding stick and grinding slowly, an accurate fit was obtained without cutting beyond edges of wax. Just enough oxy-phosphate was used to moisten the outer edge of inlay, and to cement external portion of inlay to enamel, thus avoiding change of color from cement going under disc.

Dr. W. H. Taggart thought the change of color came from the porcelain not being thoroughly fused into a dense mass, but left in a porous condition. He recommended Taylor's shellac for mounting pieces of porcelain.

Dr. Harlan in closing the discussion, said that sulphur had been suggested to him as a means of setting inlays. He did not like Hill's stopping, as it disintegrated.

Meeting, Jan. 8, 1895, Dr. C. S. Case read a paper on "When should Congenital Cleft Palate receive surgical treatment?"

The writer did not believe in surgical treatment except in occasional cases where there was an abundance of tissue, since in most instances it was a failure. He claimed that the artificial means of treatment could, when skillfully performed, be relied upon to furnish a sure means of attaining perfect vocal articulation, free from the nasal tone; provided the operator was given an opportunity to properly develop the palate according to the needs and possibilities of the muscles, and the patient persistently tried to speak distinctly. Instances were cited where patients thirty years old had commenced wearing artificial palates with great success. He also claimed that if surgical treatment were tried, it should be before the patient was five years old, and only in those cases where there was an abundance of tissue; and that where it was tried after that age, no such good results were obtained as by the artificial method.

Dr. T. W. Brophy opened the discussion by saying that he agreed with Dr. Case in regard to surgical procedure in these cases, especially with reference to young children, but that he differed from him in regard to the treatment of certain cases of adults, as much advance in the surgery of this special line had been made in the last few years. He did not question the value of obturators, but he felt that many were getting along very satisfactorily by the aid of surgical methods. He said it was only those who had had unsuccessful surgical operations performed that applied subsequently for artificial appliances.

Dr. G. V. Black, of Jacksonville, gave an incident of a case which came under his notice. One of his patients, a woman twenty-three years old, had been operated upon when twelve years of age, and so successfully that it was hard to detect from her speech that she had a cleft palate. One day she was suddenly frightened, and became so excited that she could not articulate a word for the time being. Dr. Black felt that throughout life it was a continual struggle to articulate in cleft palate cases, unless the patients were operated upon when very young. He did not believe in operations for babies, but felt that the cases should be treated not later than eight or ten years of age.

Dr. T. L. Gilmer thought that operations should not be per-

formed before the patient was a year old; that unless surgical treatment was applied before ten or fifteen years of age, better results would come from an obturator; and that where the cleft had been left without surgical treatment until the patient was eighteen or twenty years old, the obturator would be much more beneficial.

Meeting, Feb. 5, 1895, Dr. W. B. Ames read a paper on "Plastics." He confined his remarks almost entirely to oxyphosphates, with which he had been making some experiments and tests. In a former paper the writer claimed that the cause which detracted most from the integrity of cements was the use of phosphoric acid largely neutralized with soluble alkaline phosphates. While unadulterated phosphoric acid cannot be generally used in the compounding of cements, he was still of the opinion that the nearer one can come to avoiding the neutralization of the acid, the greater integrity of material there will be. The absence of alkaline adulteration of the acid not only lends integrity to the mass, but it carries with it an absence of that objectionable stickiness and leathery consistency which is very often the cause of failure. Very sticky cements are peculiar in that they adhere tenaciously only to thoroughly dry surfaces. If the cavity wall is not absolutely dry, the cement does not attach itself to it; then there is a leak, and the material is blamed. A cement without this alkaline adulteration is not so extremely sticky, and adheres either to a dry or slightly moist surface. The author believes that the peculiarities of the different cements should be studied, so as to learn which are best adapted for the different operations. The non-irritant cements in which the acid is neutralized with alkaline phosphates are best adapted to the setting of crowns and the filling of cavities in very sensitive teeth. Cements containing little or no alkaline phosphates cannot be safely used in a very plastic or creamy state, as if so used the saliva may damage them before crystallization takes place. But if such oxyphosphates are mixed to a stiff doughy consistency the crystallization will be satisfactory, they will pack definitely, and give the desirable crispness during finishing. The prime cause of the destruction of a good phosphate filling in the mouth is friction. The cements which are known to be wholly unreliable in the mouth are less affected

by strong solutions of lactic acid than those which are known to be the very best. Ammonium hydroxide has been found to give results analagous to what is observed in the mouth, as the materials known to stand best in the mouth are least rapidly broken down by ammonium hydroxide out of the mouth. From what has been seen of the durability of good oxyphosphates in the mouth; the conclusion is that the ammonia liberated within the mouth of the average person must be insufficient to contraindicate the use of oxyphosphates. From his experience with inlays and with crowns, the writer was convinced that a good oxyphosphate cement very rarely loses any of its substance when protected from friction. The oxyphosphates can be relied upon, for the teeth of all children, and for most fairly well matured young persons; for young mothers and young wives about to become mothers; in the management of all small cavities on surfaces of the teeth which are difficult of access; and in the management of large cavities requiring bold contour. Oxyphosphate of copper can be used in the management of large cavities upon the buccal or posterior surfaces of second or third molars; and for the flushing out of all shallow grooves without angles or undercuts, about the gum margins of any of the posterior teeth, because of its ready adhesion to a plane surface even when a trace of moisture is present. In regard to properly shading the cement to blend with the tooth color, it is safer to rely upon the gray tints, avoiding the yellow and very white material. Use a matrix as often as possible to facilitate the packing and save finishing, and keep the material protected from the saliva as long as the exigencies of the case will admit.

Dr. Edmund Noyes said the profession was to be congratulated upon the progress that had been made in cements, but he was not prepared to believe that the era of gold fillings had gone by. He considered gutta-percha a valuable material for the lining of cavities as a protection and non-conductor of heat, and nearly always used it under phosphate, amalgam, and gold fillings, but he did not like it for permanent fillings.

Dr. J. W. Wassall did not believe in the use of gutta-percha under gold and amalgam, since he found that it swelled and tended to loosen the filling afterward. To make a harder surface, he used enough oxyphosphate to fill the cavity, and as it hardened he burnished the surface down with a smooth burnisher.

Dr. E. M. S. Fernandez had been very successful with amalgam, and thought it was due to the manner of manipulating rather than to the material itself. He used cement, not too thick, for crown cavities, and burnished the surface of the filling with finely pulverized jeweler's cement. He colored his cements with pulverized jeweler's cement, was careful not to use cement too thick, and to have the cavity clean and dry. He thought it was a mistake to use a steel matrix, as the phosphoric acid attacks the steel, and the steel in turn destroys the surface of the cement before it hardens, so he used gold matrices. He believed in the use of cement for lining large cavities, but not in gutta-percha.

Dr. Brown, of Duluth, Minn., used gutta-percha under crowns in place of cement, and found it did not disintegrate; answered all purposes; and a crown set with it could be easily removed.

Dr. Ames, in closing, said the average dentist did not give cement the vigorous rubbing it should have, as it was mixed on too small a slab, and did not incorporate enough powder. Being asked, he said that cements were colored with different metallic oxides, and with the different shades came different working qualities.

Dr. T. W. Brophy read a paper on "A New Operation for the Exsection of the Inferior Dental Nerve," in which he deprecated the making of external incisions, because uncalled for and unnecessary. The operation which he had devised, practiced, and which he recommended to the profession, in consequence of its simplicity and efficiency, was conceived by him while engaged in operating, by the passage of a flexible silver probe into the canal. It occurred to him that the application of a flexible drill, after the form of Gates dental canal drill, entered at the mental foramen and carried backward to the inferior dental foramen, would thoroughly remove the contents of the canal. After the nerve is removed, the treatment consists in antiseptic cleanliness. He was convinced that there is not a nerve or a branch of the inferior dental nerve given off direct from the trunk which passes to the apex of every tooth root. The lower teeth are not dependent for nutrition upon the blood supply of the inferior dental artery, nor is their sensitiveness dependent upon the inferior dental nerve.

Dr. G. V. Black did not know of any reason why the pulps of teeth should die from the removal of the contents of the inferior

dental canal. The collateral circulation is usually very abundant throughout the alveolar portion of the bone, passing through the Haversian canal freely from the peridental membrane to the periosteum; that cutting off the blood supply passing through this canal would not rob the teeth of blood. So far as the peridental membrane is concerned, we have not injured its sense of pain nor its sense of touch. So long as the blood supply reaches the apex of the root and enters, the pulp may live and be sensitive, but we would expect some diminution of sensibility. As to a special branch of blood vessels being given off from the contents of the inferior dental canal, if anyone will examine an injected specimen of the vessels in this region of the peridental membrane within the Haversian canal, he will find there is no use for such a branch, and that the collateral circulation is abundant.

Dr. A. W. Harlan offered a thought in support of the theory advanced by Dr. Brophy, namely, that if the teeth were dependent for their vitality upon the presence of the inferior dental nerve in the inferior dental canal, the operations that have been made from time to time at the entrance of the lower maxillary of the inferior dental nerve for the cutting, stretching, and divulsion of the nerve at that point, would have demonstrated that the teeth would have died. Surgeons have many times severed the nerve at the entrance in the inner portion of the mouth and have cut out one, two, and even three inches of it, and still the patient has had sensation from the collateral circulation.

Dr. H. A. Gunther read a very interesting paper on the "Embalming Process as Practiced by the Egyptians," and exhibited a mummy and some photographs. Drs. Harlan and Reid made a few remarks on the paper.

Meeting, March 5, 1895, Dr. A. E. Morey read a paper entitled 'Advanced Dental Education,' in which he said the dental student of the present generation who avails himself of the training which the best dental colleges afford will have no reason to complain for lack of opportunities for fitting himself for the dental profession. Critically, there was too little scientific training, there being a lack of sequence in the courses of study or in the correlation of the various phases of studies which so depend upon each other. It is also questionable whether the average

student is capable of differentiation of contrary theories upon the same subject; where so much work is crowded into so short a time, confusion is apt to result. A good college could not make a *good* dentist of a *poor* student, and the reputation of colleges would be greater and the rank and file of their graduates would be of far higher grade if many who were termed 'unfit' were weeded out, or barred from entrance altogether. The dental and medical societies and clinics are sustained principally by the best men in their profession, and attendance upon these gatherings furnished the readiest means for acquiring the latest and best theories and the best modes of procedure. Much has been written and a large amount of advanced work done in connection with post-graduate schools and the Chatauquan courses. These systems are both very valuable for those who will do conscientious work in them. They are chiefly undertaken, however, by those unable to keep in touch with society and clinical work. A field of special work is experimentation. Experiments are suggested to the active dentist in almost endless variety.

Dr. Louis Ottofy deprecated the fact that dental literature had not been placed upon the basis of the literature of other professions. There is not a single work in dentistry that could be called strictly one on oral surgery. Dental educators questioned which is the better plan, whether to give students iron-clad rules to follow, or to give them a variety and let them exercise their own judgment. Formerly, when students were admitted at random without preliminary education, the iron-clad system was best, but now he thinks it is a good plan to teach students the different methods in vogue. Examples were cited. In regard to telling some students that they were incapable of becoming successful practitioners, the better dental schools carried this into effect. Dr Ottofy then referred to the importance and usefulness of post-graduate work.

Dr. C. P. Pruyn said the feeling of dental educators to-day is that three years is altogether too short a time to fit a young man to enter upon the practice of dentistry. There is a great advantage in taking hold of men before they reach the age of twenty five, because during this formative period both their minds and hands could be trained.

Dr. Edmund Noyes believes that boys who are to become den-

tists should have a high school education in manual training schools, where there is training both for the hands and mind, which would answer equally as good a purpose as preparation for the training required in the technic room, the operating room, and laboratory.

Dr. Theo. Menges is not an enthusiast with reference to the four-year course, although he believes it would be better. If college courses were extended to three years of nine months each, much more satisfactory work could be accomplished than is possible with a five years' course of six months each. The preliminary course was defective in that dental students were not required to have a knowledge of Latin. He thinks no student can successfully study either medicine or dentistry without at least an elementary knowledge of Latin. The dental student should take a six months course in Latin. He advocates quizzing students, rather than lecturing to them, after they have studied the lectures definitely outlined in the text books that are used. More mechanical work should be taught in dental colleges, and more demonstrators employed. College faculties should study the best means of improving and raising dental education to a higher plane.

Dr. J. N. Crouse emphasized the importance of manual dexterity on the part of students before entering upon the practice of dentistry. While lecturing to students was fascinating, it was largely a farce. The creation of harmony in the dental profession should begin with college faculties. If dental college professors could agree among themselves and adopt a system of education for conducting dental schools in Chicago properly, it would be a great step in the right direction.

Dr. C. N. Johnson said there was no text book to teach students how to handle the dental engine, neither was there a book that could be placed in the hands of a student on any subject connected with dentistry and allow the student to follow the dictates of it. Dentists who attended colleges twelve or fifteen years ago had very little conception of what is being taught to-day. The fault is not so much with methods of teaching as in the class of men that had to be taught, and if dental education is to be established upon a higher plane, the poor material must be weeded out. Preliminary requirements are defective. He disagrees with

Dr. Menges, and believes that six months of the drilling such as is carried out in some of the dental colleges of to-day, gives students enough material to digest in a year. A session of nine months would give students more material than they could properly assimilate and digest. While he believes manipulation can be taught a student in three years, yet discrimination will be lacking, as his judgment is not sufficiently developed to say what shall and what shall not be done.

Dr. J. G. Reid thinks that while it is proper to give the theories of different men to students, it was more important for the professor to demonstrate to them the application of such theories. More could be accomplished by practical demonstrations than by theoretical knowledge.

Dr. A. W. Harlan then read a paper on 'Coagulants—Self-limiting.' The essayist had long contended that coagulants or coagulators of albumin would prevent their own diffusion in a tooth, and had from time to time made experiments and demonstrations to show that it is true. He then referred to some comparatively recent experiments made by Drs. E. C. Kirk and James Truman of Philadelphia, in which these gentlemen tried to prove the contrary. The ordinary coagulants were creosote, carbolic acid, resorcin, zinc chloride, nitrate of silver, heat, some of the coal tar products, some other substances, such as alcohol, mineral acids, some vegetable acids. Corrosive chloride of mercury is not a true coagulant as a new compound is formed when it is brought in contact with albumin. Dr. Harlan then read a few definitions of coagulants taken from standard sources. He reiterated that coagulating agents—drugs—prevent their own diffusion in dentine when there is coagulable material in the dentine tubes. The experiments of both Dr. Kirk and Professor Truman do not prove that coagulating agents are diffusible. Dr. Truman's experiments show that zinc chloride would not pass through the sides of a root after one month's immersion in egg albumin. Dr. Harlan then exhibited two or three new experiments which served to re-emphasize the position he had taken on former occasions.

Dr. Thomas L. Gilmer thought the experiments of Dr. Harlan established beyond any doubt that coagulating agents did not pass through the dentine and cementum of the roots of teeth.

Dr. E. L. Clifford was under the impression that Dr. Harlan's statements were a little too broad as to the self-limiting power of coagulants, and believes there are cases, places, and conditions under which their self-limiting power is restricted, although he was not prepared to state what these cases were.

Dr. Louis Ottofy had followed the experiments of Dr. Harlan for a number of years, and while he had been skeptical as to their correctness, he admitted that he had always followed them in practice.

Dr. Harlan, in closing, said the principal value to a dentist of experiments and exhibitions of this character must be in the practical application.

ARTICULATION FOR CROWNS.

I notice in many reports in our dental journals and societies of the manner of getting an articulation for crowns or bridges, that wax or modelling compound is used. Why not use plaster, it takes a more accurate bite and is just as simple to use.

After the band is fitted and in place, mix a little plaster just thick enough not to run, then take a little on the end of your mixing spatula and place in the mouth, covering the band and one or two adjoining teeth, then have the patient close the mouth and keep it so until the plaster sets. When set, have patient open the mouth and if the plaster can not be lifted off easily, just break in center and remove the two halves, then wax together, put band in place, and varnish and fill as you would any bite; but before filling bite fill the band with wax, then when you separate the bite you will have no trouble in lifting the band from the model. Try it.

BUFF.

A NOVEL DENTAL OPERATION.

In August, 1894, *Dental Cosmos*, under the head of "Hints, Queries and Comments," Dr. W. H. Baldwin calls attention to the work of Gold Crowning Deciduous Teeth:

My practice in this dates back to February 8, 1893, when the superior central incisors of my son, then four years old, were crowned. This practice has been followed by me ever since, including four crowns for an infant daughter in November, 1893, she then being twenty-three months old.

While attending the Illinois State Dental Association in May last, 1894, by invitation of the chairman of the Clinical Committee, my children were presented and their crowns commended by members, and the belief expressed that this was the first of its kind on record.

This method of treating deciduous teeth must prove of vast advantage in durability, and relief from pain.

W. W. SHRYOCK.

Letters.

LETTER FROM NEW YORK.

NEW YORK, February, 1895.

To the Editor of the Dental Digest:

The Transactions of the World's Columbian Dental Congress are before us. We have turned both volumes over leaf by leaf and we exclaim:—

"A great credit to the committee on publication—well done, rest from your arduous labors, for it could but be such. We cannot 'digest' them in a day, so we will give them attention from time to time." There may be some hard things to digest, and we trust that we will need no "new pepsin," as suggested by the editor of the Cosmos, in speaking of the new enterprise, "The Digest." On the whole we think he did quite pleasantly in his commenting,—of course reading between the lines is always in order. Bro. Barrett is a little in a maze, he wonders "if it will be a rival after all (we) have done?" Well, as "he is not an histologist," we will let him pass, we think he will "coagulate" when he sees that statement in print, though it be (true). His little missive did not count that was dropped down before Prof. Harlan at the Union meeting of the 1st and 2d District Societies, although it did come by the mouth of a "mutual friend;" but Prof. Barrett gets there when he discusses "morphology," he has got these fellows right on his tongue—every one to his taste.

This is the last, "a Scientific Laboratory." We have all the money we want, but "brains" we do need, and as we came unexpectedly upon our friend on the corner of Fifty-seventh street and Fifth avenue, we said: "Why, what are you doing up on the 'rich man's belt' this time of day?" "I'm looking for a man to take charge of my laboratory, but he can't be found," he says. "Do you know that outside of the A. D. A. or the S. D. A. we haven't got any men that know anything about science, so when we get these distinguished men to read a scientific paper we haven't got any one in New York (in our societies) save two or three, that can cross the Damascus blades worth a cent." Heitzman comes in and trots out his *pets*. There are big moves on foot and then an education by "our Col-

lege" will set in motion a mental activity that will crush all former movements; no mind, no matter, but if they can be stirred up. "Ghee"—and no "Haw." Nothing like a good digestion and it is the impression that we've got it. A general acclaim that it is a good move and one much needed. "Why," says now and then one, "every one knows that business is business, that is perfectly legitimate, certain things can't be said if it is against those that buy our goods." There is no discussing this, we have found it out as a correspondent. We have tried too justly to show up some glaring defects of the *code* among our foremost Educational Institutions, but when our letter came along something had got on our ink marks (a trade chemical we think), they were all erased. We said, "All right, it is your journal, possibly we will try it again." The young "Pacific Dentist" comes to hand late February 9, but is not lacking in some things, modesty; certainly Dr. Dean's article as a leader, this relates to Dr. Talbot's censure regarding scientific advance. Read! Read! entirely and get the benefit of its *sound* teaching; Dr. Talbot will admit Dr. Dean stands in the front rank as a teachable writer, we read him with keen relish. His article on "Law" in the *Cosmos* was undeniably a subject worthy of our highest pride.

Dr. William Beecher Sherman is out on his honeymoon with Bessie Briggs, but he stopped over long enough to give a slap and lick on Editor Kirk for his dogmatic dictation concerning Stomatology. We think Editor Kirk will enjoy it also, he wears a fighting "bang." Don't let us get in a fret over these things; they should be like so many whetstones; nothing suits us more than to see two bright intellects scintillating forward and back; some of these sparks are going to make a fire worth our attention. Note an important statement at the end of Dr. Dean's paper. It is the "Spirit" of our purpose, "our sincerity." Keep sincere and all will work for good. Sure.

Bridge litigation in the Bennett case deferred one month. It was to have been argued in Brooklyn, February 5th. We learn that Dr. Crouse sees an advantage by the delay, good. Sometimes they are said to be dangerous. Dr Crouse has been so continuously on the winning side we pin our hopes to him.

"Suggestion" is getting an airing out in Minnesota. It works there; but it will be recalled that it did not in Philadelphia during

the hot controversy with the late Dr. James White, but that was between editors—it may be a little different in dental practice. We think we had better go slow before this is hung on the neck of an overburdened calling.

We notice some things that got into the Wells history as facts that will bear looking at the second time before laying away the archives. The testimony is not all in yet, we promise to see that the missing link shall be furnished. There are some incidents and co-incidents that will be of interest in connection with this history.

Dr. Custer, of Dayton, Ohio, presented the claims of electricity before the First District Society at the February meeting—a decided deficiency in attendance. Certainly, the absent ones missed an interesting meeting. Dr. Custer has given his inventive genius to the application of electricity for the baking of porcelain, giving a practical demonstration and producing a fine specimen of work. It was manifestly the thought that a new era is dawning upon this field, doing away with many defects which are prone to manifest themselves by all former methods. The force of Dr. Custer's claims rested modestly upon the results; these are more convincing than much controversy.

Dr. Crawford, president of the A. D. A., also edified the audience by some very intelligent remarks upon the dealing with the grinding deciduous teeth, pulpless. He advocated the grinding away of the length, thus allowing them to elongate by non-occlusion and so continuing it that extraction ultimately was needless. A common sense practice. He also emphasized the intelligence of keeping our children from mental forcing in school till the age of ten years. He evidently has given this subject much thought, we think. If he will make this subject the prominent one in his presidential address it will prove a decided incentive to an attention by the public that has never been given. We are impressed that Dr. Crawford has a line of thought that should be given to the public through the press, and we think if the executive committee will use this opportunity they can secure the liberal attention of the press and thus do what has never been done, viz.: to open the public mind to consider a subject that demands their serious and earnest notice. We have been aiming to do something in this line by both the A. D. A. and the S. D.

A., but so far nothing has been accomplished. It is timely, and we trust Dr. Crawford will by his mental activities open this matter and produce an address that such an enterprising paper as the New York Herald will be only too glad to spread before the world. It is time our profession gains the intelligent attention of the public and wipes out the hackneyed stigma of "Tooth-Pullers" and "Tooth-Carpenters" that has so long clung unpleasantly to us. If this move is laid hold upon as it may be, and should be, it will do the most effective service in the line of emphasizing the importance of our calling. Just here we have a sample case that serves as an illustration—a lad of eight years came into our hands—very bright and attractive—but my! how old and unchildlike. His father's ambition leads him to keep the boy's attention upon American history, reading it to him by the hour. So that his thought of greatness has taken on this thought—on being asked what his ambition was, he replies, "That there may be a great war, and that he may be a general and save his country like Washington." He cannot yet read sufficiently well to do away with spelling out many words. Now how did I find his teeth? Why, deformation indicated in a very marked manner, anything but a promising prospect. His mental forcing is certain to leave its devastating work in a very general manner.

An ambitious clinic is on the tapis for March. New and original exhibitions, Drs. J. Palmer and Leroy are engineering the arranging of it. So far, they have italicized the spirit of the Jackson Administration. Live men are in demand these days and it is an attraction to watch their movements.

We enjoyed the perusal of the editorial on politics in the February International. We shall watch with more than ordinary interest the newly proposed movement by the A. D. A. to neutralize political ambitions. We think a chemical that will do this work will be a wonder. May we not look for it as an outcome of the forthcoming "Chemical Laboratory" that is in the incubator in New York? No hen nor pullet could be found, hence artificial heat, and then six degrees below zero has during the last ten days brought a hazard of mental activities—yet there is hope.

DR. BOEDECKER offered his resignation to the First District Society at the February meeting. What it indicates we are not

certain. The Doctor has added luster to this society, surely. We think his spurs have been well earned. M. A. G.

A PECULIAR ACCIDENT FROM MICHIGAN.

DR. S. A. WARSABO, M. D., of Coldwater, Mich., at the request of Dr. L. L. Davis, of this city, sends a detailed report, which we have condensed, of a singular accident which came under his notice.

In the afternoon of Nov. 4th, Thomas Black, aged forty-six, in driving a coal wagon out of a yard, was struck squarely in the mouth by a wire clothes line, which was stretched taut. The man succeeded in stopping his team, released himself, and walked unaided to Dr. Warsabo's office.

The wire had caught him behind the upper molars, severing the soft from the hard palate, and fracturing the upper maxilla and nasal bones as follows: The superficial line of fracture corresponded with a line drawn from behind the last molar on each side to the apex of the nose, involving the lower and inner portion of each orbital cavity. The fractured part was lifted up almost perpendicular to the facial line, the antrum of Highmore was opened posteriorly, and there was considerable hemorrhage and sloughing of the tissues of the mouth.

The doctor and his assistant replaced the broken bones and sewed up the cuts. At the time of the receipt of the letter, one month afterward, the man's temperature had not at any time exceeded 99 degrees, and there was a good prospect of firm, bony union of the fractured parts, and good use of the upper maxilla. The sensibility of the nose and upper teeth, which was totally lost, had almost entirely returned; the nose, obstructed for a time, was open; and the deglutition, but slightly impaired all the time, was very good.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

A REPLY TO THE EDITORIAL IN THE COSMOS.

IN the editorial on the Dental Digest in the February number of the Cosmos, the editor, after extending a cordial welcome, expresses the opinion that there is a field for such a journal as the Digest proposes to make of itself. He is also kind enough to excuse all errors on account of the difficulties of launching a new journal, and attempts to point out what he considers some of these errors and inaccuracies.

Errors there doubtless were, but the astonishing part is that our editorial friend selected as mistakes, statements which will not be questioned by anyone conversant with the facts. "It is somewhat surprising to learn," for example, that "the Dental Digest is the child of necessity," and that "heretofore the body of dentists practicing in the United States have had no mouth-piece." We have no doubt of the genuineness of our friend's surprise. We can only suspect as explanatory of it, however, that before he became the editor of the Dental Cosmos his knowledge of what was going on in the dental world must have been limited to his local circle. It is a notorious fact that when such a great movement as the Protective Association was being organized, the work had to be done almost entirely through circulars, since it received but a very meager support from the dental journals. This we have reason to know to be a fact since we did the work, sending the circulars and reaching the profession in every other way practicable as it was not possible to reach them through the journals. We appealed a number of times in the early history of the organization to the editor of the Cosmos for the support of that journal, but only once did we

succeed in getting it, and then in but a very meager editorial.

We do not think it could be argued by anyone that this movement was not in the interests of the dental profession, or that it was not needed, when one corporation alone, to say nothing of a number of others, invested \$350,000 in patents, none of which were worth the paper they were written upon, and formed a corporation with which to extort royalty from practitioners of dentistry in the United States. But for the Protective Association this Company would have been at this time compelling every dentist to pay them royalty on some of their patents. It is safe to state that the dental profession has been saved \$3,000,000 by this Association. The Crown Company estimates the amount much higher than this.

If such a result could be accomplished with no organ and without the aid of the journals, what could have been accomplished if the dental journals, which claim to represent the interests of the dental profession, had given the movement their hearty support? And why should they not have done so; for certainly the movement has never contemplated anything but correcting the evils of patent abuse and other impositions on the dental profession. We were questioned in the early part of the movement, by parties controlling journals, as to what the future work of the Association would be after we had gotten rid of the abuses of the Crown Co., and perhaps herein lies the secret of non-co-operation, as we refused, and very properly, to pledge what the future work would be. One thing is certain, and that is, the journals did not give anything like the support they should have done.

In regard to nearly all the journals being controlled by dental supply houses, or dependent upon the advertisements from these houses for support, we beg leave to inform our friend that before he became editor of the Cosmos, nearly all the large dental supply houses entered into a trust. A dental trust was certainly not organized in the interests of the profession, and while of course no criticism could be looked for from the journals controlled by the combination, there were a few journals which would have taken the side of the dentist against this unlawful combination, but if they had done so, the advertisements from the trust would have been withdrawn.

We take the ground that there is a vast difference between a Dental Protective Supply Co. composed of dentists, owned and controlled by dentists, organized on a co-operative basis, for mutual benefit, and in no violation of the law; and a combination or trust, forced to keep the prices up, and so tax the profession.

We had not intended to enter into this question of the trust at present, but it was forced upon us, and we now stand ready to defend the position we have taken, and if we are wrong we are not only willing but shall be glad to be set right. Perhaps the feeling and policy of the journals may have changed, and that they are now ready to aid in these reform movements. If so, no one will be more pleased than ourselves; for although the movements undertaken have already accomplished a great deal, the work is just begun. The experience some years ago with the Rubber Co., and lately with the Crown Co., should have taught the profession that, save for the Protective Association, they are wholly unorganized. Less than one-fourth of the profession as yet belong to the Association, while *every* dentist should belong to it, and if the journals are willing to aid in banding the profession together against imposition and abuse, what a future is before the profession.

Can anyone show why the journals that claim to represent the dental profession, and to have their best interests at heart should not help? We await a reply.

A CAUTION.

The conservative practitioner who keeps pace with the changes in methods of practice will, we think, agree with us in this proposition, viz., that alveolar abscesses will increase in frequency in proportion to the number of practitioners who follow the practice now being advocated of leaving the pulp, after being devitalized, in the roots of teeth, and making no attempt to fill them. So must there be a greater increase of trouble following the practice of immediate root filling, instead of the method of frequent treatments before filling, where the pulp has been dead for a considerable length of time. These two methods being advocated in so many different quarters, we wish here to sound an alarm and enter a protest against such practices.

The trouble growing out of the practice of leaving the devitalized pulp in the roots will not develop itself at once, and is therefore the more dangerous of the two methods, as the operation can be performed, the patient dismissed, and the trouble arising from such a practice may not come for a number of years. But too large a per cent of cases treated in this way will give trouble sooner or later. It has been but a few years since our dental literature was full of warnings caused by the published discussions where all forms of eye and ear trouble, and neuralgia had been discovered, and the cause attributed to teeth with pulp canals improperly cared for. At the time spoken of the discussions and agitations of the subject resulted in much good by increasing the care and encouraging more diligence in regard to having the roots well treated and filled, but the present advocating of a less thorough practice is sure to be the cause of trouble in after years.

In regard to the practice discussed here—that of immediate root filling without numerous treatments beforehand where the pulp has been dead any considerable length of time—less harm will come from it since the trouble will be immediate, and those practicing this method will be kept in check by the patients returning with their complaints or going elsewhere for relief. We take the position that it is far better to treat every tooth more times than is necessary, than to fill even one before it is safe to do so. The same is true with regard to removing the pulp; it is better to spend the extra time necessary for its removal and the placing of something in the root to fill the space and exclude the moisture, even though a large per cent of teeth with roots not filled may never give any trouble.

The object of this article is to give a word of warning rather than to go into the details of root filling, or the theories of what takes place through different methods of practice.

TO OUR READERS.

In making the digests of articles, etc., we are not responsible for the views expressed or the claims made by the authors of the original articles. No comments will be given in making the digests, but we shall endeavor to give simply the salient points of the various papers. However, any of our readers who do not

agree with the opinions expressed by the writers of these papers, are invited to reply to them, and also to send us any original articles, items of practice, etc., which they think will be of general interest to the profession.

Book Reviews.

A COMPEND OF DENTAL PROSTHESIS AND METALLURGY. By George W. Warren, D. D. S. Fully illustrated. P. Blakiston, Son & Co., Philadelphia, 1894.

The author needs no introduction, as he is well known through his other works. The book can hardly be called a compend, but is rather a condensed list or table of mechanical operations for easy reference. It is a little too full in one or two chapters, such as that on "temperament," but evidence of painstaking effort is shown throughout the book, and the section on metallurgy is especially good. It is a book which should be in every dental library.

DENTAL MEDICINE. A Manual of Dental Materia Medica and Therapeutics. By Ferdinand J. S. Gorgas, A. M., M. D., D. D. S., Professor of the Principles of Dental Science, Dental Surgery, etc., in the University of Maryland, Baltimore, Md. Fifth edition, revised and enlarged; pp. 580. Price, cloth, \$4.00. Philadelphia, P. Blakiston, Son & Co., 1895.

This standard work is very well known as a text-book, and requires but little comment. This, the fifth edition, has been carefully revised and enlarged, and there are but few places which could be criticised.

Among the new medicaments which have been added to this edition, are: Sodium peroxide, pental, euophen, aseptol, glycozone, coryl, ethyl chloride, tropacocain, kalium, natrium, trikresol, loretin, phenosalyl, formalin, diaphtherin, boracin, dermatol, vascelone, camphoid, gaultheria, catechu, carbolate of camphor, cocain phenate, sulfophenol, mono-chlor-ethene, tri-methyl-ethylene, di-iodoform, carbolized cosmoline, eugenol, acetanilide, electrozone, etc.

There are many additions to the text, and many new receipts have been added. It is a book which every student should have for study, and every practitioner for reference.

Notices.

NOTICE.

The undersigned, when the DENTAL DIGEST was projected, expected to act as editor, but the work of digesting journals is not to his taste; consequently he retired to reassume the editorial charge of the DENTAL REVIEW with which he was so long connected. In closing this brief connection he tenders his thanks to the first contributors and wishes abundant success to the DIGEST.

A. W. HARLAN.

TRI-STATE MEETING.

The joint meeting of the Dental Societies of Ohio, Michigan, and Indiana will occur June 18, 19, 20, 1895, at Detroit, Michigan. The dental department of the Detroit College of Medicine and Surgery has been secured for the sessions. Michigan has generously invited her sister states to share her hospitality and be her guests on this occasion. The program contemplates four literary sessions, two half-days of clinics, and one half-day of "hurrah." This latter will come in the form of an excursion, thirty-two miles up the Detroit River to the St. Clair Flats, where we will dine at one of the club houses built on piles in the middle of Lake St. Clair. Special hotel and railroad rates are assured, and will be announced later. The railroad fare will be at least as low as one and one-third fares. All reputable dentists in the three states are cordially invited to attend.

EXECUTIVE COMMITTEE.

ILLINOIS STATE DENTAL SOCIETY.

The thirty-first annual meeting of the Illinois State Dental Society will be held at Galesburg, May 14 to 17, inclusive. An interesting programme is in course of preparation. All dentists practicing in Illinois are specially invited to attend. A cordial invitation is extended to the profession in general. This will be the first meeting in Galesburg since 1876, and it is the hope of the officers that it will be one of the most profitable meetings in the history of the society.

LOUIS OTTOFY, *Secretary*, Masonic Temple, Chicago.

ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

President, Dr. Geo. A. McMillen, Alton; Secretary, Dr. L. L. Davis, Chicago, 524 W. Van Buren St. Members: Geo. A. Christmann, D. D. S., Chicago; Lester Irons, D. D. S., Mt. Vernon; A. W. Harlan, M. D., D. D. S., 1000 Masonic Temple, Chicago.

Obituary.

DR. H. H. TOWNSEND.

Harrison H. Townsend was born in Concord, Erie county, N. Y., November 16, 1840, and died at Pontiac, Ill., February 9, 1895. He was the youngest of six children and is survived by all the others. On the death of his father, when Harrison was 12 years old, he went to Buffalo and lived for some years with an uncle, working in a store. He studied dentistry under a preceptor in Springville, Erie county, N. Y., and there he began practice; but in March, 1866, he removed to Pontiac, Ill., where he remained nearly 29 years, till his death.

October 23, 1867, he married Mary E. Gaylord, of Springville, N. Y., who with one daughter survives him. In May, 1871, he joined the Illinois State Dental Society and remained a faithful member until the end of his life. He was Librarian, 1882-3; Vice-president, 1884-5; President, 1885-6. In March, 1890, he graduated from the Chicago Homeopathic College, and later became a member of the State Homeopathic Society.

As a dental operator there was probably not in the United States a man more painstaking and conscientious than Dr. Townsend. His only ambition apparently, was to make every piece of work to which he applied his hand just as perfect as possible. By the conscientious performance of every duty laid upon him, and withal by the possession of a most kindly, gentle disposition and manner, he attained the possession of a very extensive practice. His book of engagements was often filled for many months ahead, and those who had once been in his hands seldom went elsewhere for dental services. They would come to him from the cities to which they had removed, and often even from other states.

An indication of the spirit which always governed him professionally the reader may find in the transactions of the Illinois State Dental Society for 1874, the first paper he ever read, entitled, "*Thoroughness and Honesty in Dental Operations.*"

The cause of his death the writer believes was overwork. He could not say "No" to the demands upon him, seldom took a vacation, and was a worn out man at the age of fifty-four.

His was a personality so unusual, and withal so lovable, we shall not soon look upon his like again.

G. N.

Death from Cocain.—A death from cocain has just occurred in a dentist's chair in Goshen, Indiana. The patient was a man fifty years of age, and was to have two teeth extracted. Ten minims of (nearly) an eleven per cent solution were injected into the gums, and the patient died in a few minutes after the teeth were extracted. The toxic dose of cocain in this case was, therefore about one twelfth of a grain.—*Railw. Surgeon.*

News Summary.

Cocaine and Bromide of Sodium are incompatible, and serious consequences might arise in case they were administered together.—*Courier of Med.*

Dr. A. C. Hewitt recently exhibited some copper amalgam fillings in the sulci of superior molars that were perfect in color and showed no evidence of shrinking.

There were about 100 visitors to the clinics of the First District Dental Society, January 8. The meeting in the evening was largely attended, perhaps as many as 200 being present.

"The diagnosis of facial abscess had been made by one of those fortunate men who bear both the title of M. D. and D. D. S., and knowing neither profession, practice both."—*E. S. Hodgskin, M. D.*

Dr. Ulysses G. Poyer, of Chicago, died during the month of December, in Chicago. Dr. Poyer was a man of great promise and was much esteemed. He leaves a young widow, having been married only a few months.

The Tri-City Dental Society meets monthly in Moline, Rock Island or Davenport. These meetings are largely attended. Drs. H. G. Pape, Charles R. Botter and A. O. Hunt have read interesting papers recently before this society.

Dr. Broduax, in *La Semaine Medicale*, gives the following remedy for toothache:

Chloral	} aa 5 ℥ o drachm j 1-4
Camphor	
Carbolic acid	
Glycerine	

Introduce a ball of cotton moistened with this mixture into the cavity.

Why allow your patients to have pyorrhoea, when, according to J. Foster Flagg, in the *Am. Dent. Journal*: "Any dentist who allows his original patient who follows orders to have pyorrhoea should be sued for damages. See that no food presses on the gum border; see that no tooth is unduly pressed and contorted by false articulation, caused by improper width and contouring; allow no biting of threads, cracking of nuts, biting of ice upon one tooth only; or, when a tooth, or teeth, has been lost, see that the articulation is restored and my word for it, gout or no gout, syphilis or disease, pyorrhoea will not come, except filth and malaise of one or more teeth."

Invoking the Law for a Tooth.—A curious suit was recently tried in a European court of justice, in which the plaintiff sought to recover from his dentist a tooth which the latter had extracted. The dentist, guided by precedent, maintained that the tooth clearly belonged to him, simply because it belonged to no one after it was extracted. It seems to us that a nice point of law would have been to decide to whom the pain belonged when it was removed by the dentist in conjunction with the tooth. Some people are never satisfied, but most people, when they lose a toothache, describe it as a painful parting which is really enjoyable.

The Dental Digest.

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No. 4.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

BY J. N. CROUSE, D. D. S., CHICAGO.

(Continued from page 131, No. 3, Vol. 1.)

In our third article in the March number of the DIGEST we discussed diagnosis and prognosis quite fully, described the methods to be employed for the first few sittings, and showed why patients should pay just as well for this preparation as for the actual operations.

If the human race had all the money they needed and those requiring dental services were willing to compensate for the same when properly performed, practicing dentistry would be a very enticing occupation, but the conditions are altogether different from this. First, we have those whose means are so limited that to pay for the best dental service is a very great hardship. Second, we have those who have the necessary means, but from a lack of appreciation or education in this line are unwilling to pay the compensation that good services should command. Third, we have those who have the necessary means and are willing to pay a fair price for good services. A large proportion of this latter class are those who have been educated by the dentist—having come into personal contact with professional men who have taken the trouble to explain this question of proper compensation for good professional services, and have given them the appreciative understanding of their duty in this respect. Naturally they are the desirable patients, for, so far as we know, dentistry is practiced not as a recreation, but as a means of liveli-

hood and for the compensation it yields. For while there is a fascination in the practice of dentistry, this is very largely increased by the knowledge that your services are appreciated financially.

To the practitioner who already has all he can attend to of this class of patients this discussion would not be of much interest, were it not for the fact that everyone necessarily comes in contact with a class whose means are limited, many of whom are among the most intelligent, appreciative and agreeable patients for whom we are called upon to render service. How can we serve this class to the best of advantage, and who cannot see the advantage in rendering service to the intelligent and appreciative? Many of the best paying patients come to us through those we have served who may not have been able to give us what we called our full fees. To the young man let me say be careful that you do not turn away those who may be your best aids if you give them your very best service. Make sure that you serve them to your best ability if you serve them at all. If, on the other hand, our time is fully occupied with a practice that commands our full fees, we should employ a young man who, aided by our counsel and judgment, can render good service. In this way good is done in several directions. For instance, there are many young men who have not had the long experience which is absolutely necessary to a complete dental education, but who under direction can render good service. On the other hand there are numerous patients who are not able to pay what the full time of a first class dentist will command, yet who wish his judgment and supervision and are willing to have the assistant carry out any plans the dentist may adopt. They are thus well served, and at much less expense than if he had carried out all his plans and performed all the operations with his own hands. In fact, this plan can be carried into practice to advantage, not confining it to those whom we call limited in means, for dental services when well performed are very expensive and are rather a heavy tax upon the average individual's money resources; especially is this true of a parent who has a family of children with average constitutions. Each child requires more or less service and many times more than less; then if the family is large the expense for good dental service is a great expense, especially if all the work is per-

formed by only those who have the necessary qualifications for first class dentists. For the reason that a first class dentist who has had sufficient experience and the various qualifications as enumerated in our first article, can always command good fees if he has the determination to do so. Hence when his ability becomes known his time will command high fees, in which case he can lessen the expense to the community he serves, increase his income, and give his patrons better service by employing a competent young practitioner to assist him. This will enable the latter to acquire the necessary means, information, and experience, and if he is made of the right kind of stuff he can open an office in a few years for himself—this is one of the ways in which this course does good. Another is that honest, worthy people who have not a great abundance of money can get first class service and not be so taxed as they often are, when they are obliged to go where they get neither skill nor honest service. And still another and even more important reason than the others named is the benefit that a more varied occupation gives to the practitioner himself, for if there is one thing more than another that an honest, hard-working dentist needs it is variety in his occupation. Where one stays by his chair wrestling and contending with nervous and unruly patients, filling teeth the greater part of the time, doing all the detail work himself and thinking of little else, it is only a matter of time when a broad intellect must become narrowed. This only varies in degree in proportion to the closeness of the confinement, and can surely be set down as one of the chief causes of the lack of growth in the individual practicing dentistry. So we contend that all practitioners will render better service by having others to perform a fair share of the numerous operations, and by their doing the thinking out of the best methods to adopt in each individual case. This requires much more ability, a capacity to think and reason, some system of bookkeeping, and a considerable variation of occupation; and it is this which adds to our growth. Making our opinions worth something enables us to conquer instead of being slaves all the time.

If you are so situated that you cannot enlarge your occupation by employing assistance, occupy your spare time in some way that will increase your growth, which of necessity will enlarge your manhood and enable you to do better work, get better

patrons and increase your happiness. If you have not already done so, join with us in our battle for freedom, but we must not dwell on this topic longer.

We have another class of people to deal with which we described as those who have plenty of money but who have not the proper appreciation of what professional services are worth. To the treatment of this second class we will give our especial attention at this time and see if we cannot educate them to a proper appreciation of our services, a part of which must necessarily be done as we proceed with the operations. In years of practice we have from time to time come in contact with many of this class and have generally succeeded in improving their education in this respect—some of the least appreciative becoming in time our most valued patrons. If we are serving the head of the family, who is to pay the bill, and can make him understand from time to time as we proceed, what we are doing and what we shall expect of him in the way of compensation, the education is more easily instilled.

It has been our rule when new patients apply for services, after making the diagnosis of what is to be done, to ascertain whether or not they understand what the fee should be and were willing to properly recompense our efforts. If they have been in the hands of a dentist before and the result shows that good services have been performed, the natural inference is that they already understand something at least of what a dentist's services are worth. On the other hand, if there has been no considerable amount of work done, or what you see indicates it has been of a poor quality, it is fair to presume that they have not paid the fee that good services will command, and in such cases we always discuss at the proper time, and early in the proceeding, the kind of services needed and the compensation for such. You can prepare a cavity and fill it before discussing these questions, or after the cavity is prepared discuss the material to be used, which gives a good opportunity to force a discussion of fees. We say force, because sometimes it is not an easy matter to get a patient to enter into a discussion, especially is this so with a large class of what are termed shrewd business men, they preferring to have the financial battle after the services have been performed, not on account of their lack of money but because of a disposition to

bully the operator, and they adopt this method to escape their share of the contract. We know of no better way with this class of patients than the discussing of the subject at various times when the services are being performed, so that there may be no misunderstanding as to what our demand for remuneration will be. When, however, we are serving the children and have not come in contact with the head of the family, the question is more difficult, and is likely to result in unpleasantness afterwards. To avoid this we send for the parent, after ascertaining which side of the family runs the finances, and discuss the question soon after the services have been begun. This many times requires constant repetition and sometimes a visit to the house, and we prefer to have the responsible person come to the chair with the child to see what we are doing and to appreciate the time being given in these services, and at the same time to have an understanding of the methods and materials being used; we forcing if needs be a consultation, when of necessity the question of expense and remuneration naturally come into the discussion.

To conquer in this struggle for our rights requires that we have a proper appreciation of our worth. We must first be able to perform or render good service, then be sure we have correct ideas as to the value of professional service. For if we ourselves are mere mechanics, only counting on what it is worth to 'stuff a cavity,' we are sure to be conquered, and allowed pay accordingly. Professional ability to diagnose any case properly, the power to reason what this or that course if adopted must lead to, and the being able to give advice or perform any kind of operation, is all essential when educating the unappreciative.

We are well aware that it is impossible to give estimates or definite figures beforehand as to the cost of dental operations, but in a case where means are limited some information is absolutely necessary, if any considerable amount of service is required. Also in cases where money is not limited, it is many times much better, when the patients are not familiar with the expense necessary, to familiarize them as the work progresses; but we must postpone any farther discussion of this question until our next article.

(TO BE CONTINUED.)

MECHANICS IN BRIDGEWORK.

BY EMORY A. BRYANT, D. D. S., WASHINGTON, D. C.

Outside of general pathological conditions, which must be taken into consideration in operations of this description, certain mechanical principles and demonstrated facts are the real basis upon which such structures must be made if a reasonable success is to be anticipated, the abandonment of which means ultimate failure in the majority of cases. That these mechanical principles are not always the base of the construction of dentures of this description is very easily proved by the illustrations of various cases presented to the profession through the medium of our dental journals, as well as by books published referring specially to this branch of the dental art. To the eye of a mechanic, they do not even need practical demonstration to condemn them *in toto*. That they are not all failures is not the fault of the construction, but due to "favoring" the appliance upon the part of the person wearing the denture, or absence of antagonizing teeth, in both instances relieving the structure from the strain it should be designed to undergo.

In order to give a clear idea of the points involved, I shall be compelled to divide the subject into two classes: First, permanent or immovable; second, removable (so-called) bridges.

In the first class, we have a beginning with the Low bridge, followed by that of Richmond, and concluding with the numerous modifications of these two. In the second class the beginning was so remote and gradual in its development as to make it impossible to give its inventor or even surmise the same. While its transformation from a simple "plate" into a so-called "removable bridge" is of more recent origin, its author has become so effectually obscure that it is very doubtful if he will ever be resurrected.

Bridge-work in dentistry is the building of an artificial denture *over* a space from which the natural teeth have been extracted, to teeth or roots of teeth remaining in the mouth, using the same as abutments therefor, depending upon the abutments for its stability and position, and not upon the gum or tissues beneath. All classes of so-called bridges not filling these requirements are not bridges in the true sense of that word, and should not be classed

as such. Artificial dentures of any description held in place with clasps or bands, by slots or gibs or modifications thereof, the body of which depends upon its contact with and upon the gum for its stability or support, is not a bridge, but merely one of the many forms of plates. Bridges should not be confounded with these plate forms, nor should the failure or success of this class of work be attributed to bridgework, but relegated to the plate family, where it belongs, to live or die by comparison with and in its own household. By placing this dividing line between plates and bridges we are able to give to each its true value and defects, its successes and failures.

In the immovable structure we have and always will attain the best results, from the simple fact that it is not only immovable itself, but it retains its abutments in an immovable position, distributing any unequal strain brought to bear upon it in any direction, equally upon all its abutments. Lateral strains are the most to be feared, and are what destroy the abutments, should they not be strong enough. A bridge extending from the wisdom, or the twelfth year molar, to the first bicuspid or cuspid, unless favored by an unusual bite of the antagonizing teeth, will almost invariably fail, the abutments becoming loose under the lateral strain, while if it extends beyond the cuspid as far as the central incisor or farther, these latter abutments serve to break the lateral strain, and such a bridge, properly made and articulated, rarely fails. This same fact is demonstrated in bridges of a full denture attached to only four abutments, viz.: two cuspids and a molar on each side of the arch. In case the full denture is attached to a wisdom tooth on each side in the superior arch, it is best to solder in a piece of iridio-platinum plate, fitting and slightly imbedded in the tissues across the roof of the mouth and soldered to the wisdom crowns, making it stiff enough to thoroughly brace the bridge at this point, so that any lateral strain will be distributed instead of concentrated upon one side or the other. This is of course impossible where the denture is in the lower jaw, but it must be arranged for by strengthening the denture at its arch from cuspid to cuspid and where the bridge joins the arch at the cuspids. Perpendicular strain has no ill effect upon the abutment crowns whatever if these abutments are firm when the bridge is inserted. I make no exception to this

rule as regards the strength of the different jaws met with, since nature always provides strong teeth in jaws of massive strength. You will notice how plainly this fact is shown in cases of excessive abrasion, the "bite" being square down, and the greater the abrasion and the shorter the teeth become, the stronger they are found to be imbedded in the sockets. In these cases the lateral strain is removed altogether, or nearly so, and nature resists the perpendicular strain by strengthening the sockets. The only reason that can be advanced for the "give" or slight motion which can be detected in the fully developed teeth, and which movement is at times used as an argument against the immovable bridge, is that the lateral strain is neutralized by this slight cushion action, the teeth returning to their normal position the moment the strain is removed, and that it is nature's brace and one which must be duplicated by mechanical means whenever these teeth are replaced by artificial substitutes. If we look after the lateral strain on the abutments used, nature will take care of the perpendicular. This statement is borne out by the fact that a loose tooth used as one of four or five abutments in a bridge, and securely held quiet, all lateral strain being removed from it, although it is subjected to the same amount of perpendicular strain as the other abutments, it becomes as firm in its socket as formerly in its normal condition, and even more so. Did not nature have this power of resistance, the greater strain always being perpendicular in the process of mastication, this loose tooth would become more loose, and by not giving resistance at this point the leverage would be so great that it would cause the bridge to tilt. Or, in other words, to have the same action as is found in the case of the abutments called "extension bridges," the extension acting as a leverage and virtually pulling the other abutments out of their sockets, distributing a lateral instead of a perpendicular strain to these abutments, thus accomplishing the very result we have to guard against mechanically, though in a different direction. Nature endows the parts of the body only with such strength of tissue as is required to allow normal action, giving no organ more than is needed for the function it is designed to perform, but endowing each part with a certain reserve force with which to resist abnormal action to a certain extent, as well as to be abnormally

developed in certain directions, as in the case of the athlete, the artist, the sculptor, the mechanic, and I might add, the dentist. The whole structure of man, so far as the articulations of the bones of the body, limbs, head, and feet are concerned, in their normal condition, is built upon the very finest of mechanical lines, as well as are the "braces," the muscles, and each and every part is endowed with reserve functions for the resistance of undue strain upon any part, and all we have to do is to study these mechanical effects and take advantage of them and success will attend our efforts. Systemic causes of failure I am not dealing with, as that applies to everything and has no especial relation to bridge-work from a mechanical standpoint.

With these mechanical facts to judge from as well as a personal experience of eight years with immovable bridges, I am compelled to take the position that it is mechanically the "artificial denture par excellence" when properly constructed and inserted, due care being taken for the strength of the parts and materials used and their relations to the tissues, and for all lateral strain, as nature will care for the perpendicular when required. If these mechanical principles are always followed, failure of immovable bridges from mechanical reasons will be an impossibility, leaving only bad cement, faulty insertion, systemic causes, and improper care by the patient in not keeping it clean, to be contended with, and failures of this kind pertain not only to bridge-work, but to every operation known to dental science.

Remarks on Foreign Bodies in the Pharynx and Œsophagus.—Fish bones and pins are liable to be caught in the pillars of the fauces, or in the tonsils, or may be fixed transversely across the pharynx. They cause much pain in swallowing. In these cases it is best, if possible, to try to search for the foreign body by the laryngoscope, and then to grasp it by suitable forceps or by the finger nail, while the pharynx is illuminated. This is a safer method than the plan of feeling for it with the finger without a light—and risking its passing down into the larynx. The tongue must be well pulled forwards with a sponge cloth and the patient induced to continue breathing regularly, after first drawing a long breath. If the object is beyond the reach of a curved forceps or of the finger, it may be removed by the expanding horse-hair extractor or coin-catcher. If these methods still fail, first without chloroform and afterwards with its use, then it is necessary to perform pharyngotomy.

J. C. Howie, in Glasgow Medical Journal.

TITLES.

BY W. H. DUDDY, D. D. S., BOSTON, MASS.

From daily conversations with dentists, and from reading the articles published in the periodicals, I cannot help being impressed with the idea which seems to be prevalent in all quarters; viz: that it is a necessity and an honor to have the degree of M. D. attached to our names, as well as the degree possessed by all graduates. As far as the honor is concerned, it may in some slight degree add to the prestige of a few dentists, but it does not to any appreciable extent contribute to their ability as skillful manipulators. As to the necessity of such a degree, it is impossible for any sane man to think for a single moment that it adds one iota of skill to the dexterity of his fingers, or makes keener his vision, two indispensable things to all successful dentists.

I presume that the idea becomes deeply rooted in our minds during our collegiate course, because at that time so much stress is laid upon the desirability of having a passable knowledge of several medical branches, that the main object disappears from vision. It is far from my intention to belittle any proper education, but I do most strenuously object to students being saturated with the false idea that the profession which they have spent their valuable time to acquire, is dependent upon any other for recognition. Such a position is a confession of weakness, and should not be tolerated by any conscientious man. Dentists should learn to depend on themselves, for when they understand thoroughly and can perform skilfully all dental operations, their standing as the peers of the members of the medical profession is assured.

HINGED SADDLE.

BY A. J. STEVENS, D. D. S., LOS ANGELES, CAL.

Within the last four years I have placed in the mouth what I call a hinged saddle, and it works so nicely I will give a brief description of it.

In one case the patient had superior right second molar and cuspids; the left molars and bicuspid being out. I put in a bridge

and on posterior side of cuspid crown soldered the one-half of a hinge, the other half I cemented with a tenant made of silver, which tenant I covered with a close fitting case of silver, all of which (tenant and case) was in shape of a truncated wedge. About the middle of this tenant and case I drilled a hole to admit a small pin to eventually pass through the rubber, which held the teeth to the gold plate saddle, and the wedge. After the bridge was set I fastened the truncated wedge, which was united to the second half of the hinge, to the part of the hinge soldered to the cuspid crown; then placed the saddle on gum and with a little metal wax united the wedge and plate, pulled the hinge pin and removed so the pins could be more strongly united with wax preparatory for the impression.

I first made two wooden pins about three-quarters of an inch long—one to answer for a hinge pin, the other to pass through the wedge part—and when all was in place I took the impression in plaster, and when hard, pulled the hinge pin and removed. This was now ready for investing material, and when hard I cut away the impression plaster and prepared for soldering the tenant case to the saddle plate. Before soldering I pulled the wooden pin and slipped out the tenant and then invested, and soldered with 14K solder. When soldered, I cleaned and put back the tenant and pin, placed in the mouth as before and took a bite, then the impression for setting the teeth. A little cement was needed to close the openings to tenant case so the rubber would not fill it when vulcanizing. I let the first bicuspid press snugly against the cuspid crown so that when the pin was in, the saddle rested snugly against the gum. The tenant pin with a head is to be drawn when the saddle needs to be removed for cleaning, etc.

MOUNTING LOGAN CROWNS.

By J. W. HECKLER, D. D. S., BUFFALO, N. Y.

For the central and lateral incisors it is preferable to mount the crown without a band, and my method is to prepare the root in the usual way, but to cut the labial side just a little beneath the gum margin, leaving the palatine portion as long as the judgment of the operator dictates. Select a crown that will not need any

grinding on the cutting edge or the sides to make it fit, as it always impairs the beauty of a Logan crown to cut the surface. Also be extremely careful to select a crown with a neck similar to that of the root. This being done, grind the crown to as perfect an adjustment to the root as possible, taking care not to grind the platinum pin, as it would materially impair the strength of the crown. If the end of the root has been properly treated and filled, it is now ready for the final adjustment of the crown.

Take non-cohesive gold foil no. 4, fold it from 80-100 thickness, punch a hole in the center with a dam punch large enough to admit the pin, place the pad of foil on the crown, trim the ragged edges almost to the sides of crown, remove and place some thin cement in cup of crown, put pad back in place, tilt patient so the cement can be placed in root canals and all the air be expelled, otherwise the air acts as a cushion and keeps crown from going to place. All this being accomplished, place the crown in position, put a soft pine stick on the cutting edges of crown, and give a few sharp raps with the mallet to drive out all surplus cement and to condense the foil. Keep the crown firmly in place for a few minutes to prevent any movement, and it is advisable to have the patient remain a half-hour to allow the cement to thoroughly harden. Then burnish the gold foil hard around the joint and finish with disks and strips as you would a filling.

A crown set in this way does not show any cement whatever, and it makes a more perfect joint than is possible by any other method. It leaves no shoulder for the lodgment of food, is perfect in shape with the root, and hermetically seals the joint.

Children suffer from various kinds of aches which it is not always easy to understand. Earaches, toothaches, faceaches, headaches, all visit them at various ages. A dentist who has examined the teeth of a large number of children finds that the age of toothache is from seven to twelve, and of 3,145 children examined, only 707 had quite sound teeth, and those with imperfect teeth had defects which, without correction, would have led to permanent injury as well as to disfigurement. In this age when every organ and part of the body is receiving attention, the teeth should not be forgotten and the children's mouths should be regularly inspected by a competent and honest dentist.—*Pop. H. Mag.*

Digests.

Proceedings of Societies.

The Chicago Odontographic Society held its regular monthly meeting April 8, 1895. Dr. J. H. Smyser read a paper on "Higher Dental Ethics," a digest of which is as follows:

"A sufficient number of propositions or principles of Ethics are universally accepted by enlightened society to form a firm basis for the Doctrine of Ethics – the highest and noblest branch of speculative philosophy. Few indeed are the men who would attempt to controvert any part or parcel of the doctrine contained in the simple injunction, "Do unto others as you would have others do unto you."

It is in the practical application of Ethical principles to our every day practice where the "faith that is in us" is put to the test. This point is well illustrated, I think, by a discussion between a French Professor and a group of his young countrymen. The professor was an instructor on Ethics. He had previously attempted to ground his disciples thoroughly in the doctrine contained in the injunction "Love thy neighbor as thyself." It was review day and he was questioning his class closely in order to test their ability in applying its teachings to practical affairs of life. The answers of the students came promptly; they showed a high degree of advancement in ethical training; there was no halting, no faltering, no misjudgment; finally came the question, "How should the French as a nation feel toward the Germans as a nation?" Here was a poser. The wheels of progress were blocked; silence reigned everywhere. It was a case where inclination and plain duty clashed. Certain images of Alsace and Lorraine began to float before the young Frenchmen, and here began a series of specious modifications and exceptions supposed to free the French from the operation of a plain law. And this picture is a type of the difficulties that beset men everywhere, and in all walks of life. It is the unswerving application of plain rules to the practical affairs of life whatever our own inclinations are, that give rise to doubts and difficulties.

In order to avoid the many undesirable infractions upon the code of ethics we must endeavor to improve our institutions of learning—to do this more time and attention should be devoted, and greater care observed in making good honest impressions upon the student, affecting the character of the professional life he is about to lead.

Is it not true that in art, business and the professions students follow the general style of their instructors, or the institutions in which they secured their education? We believe that the greater fault lies in the fact that most of our so-called colleges are conducted in too great a measure as a money making medium—and since as a rule the men on the higher rounds of the ladder in the profession are the ones usually connected with those institutions, either as directors, or faculty, they are responsible for the way in which that institution is conducted.

To the same fact may be added the inability to obtain any satisfactory legislation in the way of giving authority to corporations to grant license to individuals to practice dentistry.

I hope each one here tonight will become interested enough in this subject to formulate an answer for himself.

A few of the colleges are without a doubt attempting to improve these conditions—endeavoring to impress the students with the fact that they have some honesty of purpose, and aside from giving them the best possible instructions upon the theory and practice of dentistry are also inculcating principles of a higher character satisfying the requirements of the honorable practitioner.

Advertising in its various forms seems to be the leading evil, to which men resort to lower the standing of the profession. It is not necessary to enumerate the different forms used by each individual—since unlike conditions and circumstances demand a style peculiar and suitable in each case to make up the deficiency. All alike are obnoxious and dishonorable, the main object being to deceive. Whether through the public press, programmes, or gay streamers hung up in public places, they all have the same purpose in view, and the same unprofessional effect in the end. The higher the standing of the individuals the greater harm is done.

Take as an example a student at college often writing out the

time for an appointment with a patron on a card on the back of which is printed the statement that "we charge for material only," and after the patient returns and has a tooth filled with amalgam, a charge of \$1.50 or one dollar is made. What a volume of ethical culture goes with such a transaction, what a feeling of honesty there is in it; and then that same student goes down town and drops into one of the hotels and there on a post he sees the name of one of the faculty on a silk ribbon telling where he may be found during certain hours. This of course is to convey to the unwary stranger the fact that his name being on the nice yellow ribbon would be a more desirable place to receive professional services than across the way where the portraits of those many nice looking men with the stylishly trimmed whiskers are placed on a bill board.

No credit or honor can ever be claimed by an institution that turns out young men under such conditions, though a few may reach the highest pedestal of fame and from the time they leave its portals their march is upward and onward, elevating whene'er they can the solid mantle of our code by honesty and integrity.

I am a firm believer in the saying "that the sins of omission are as great as the sins of commission." We should reach the highest perfection in our better colleges and wipe out of existence those which are conducted only for pecuniary gain, and not for dental education, and when this is done our attention should be turned to those Augean stables found in all large cities—called dental parlors

If it were not a fact that the eyes of the public were kept in darkness concerning the happening of those places, owing to the bountiful revenue contributed to the daily press, they could not possibly exist.

Think of the Health department interfering with the prayers of Dr. Dowie on ethical exceptions, and allowing the Dental Parlors to flourish unmolested. Here is an opportunity for someone to promote our ethics and at the same time become a benefactor.

Injustice done to the public is not done only by this lower strata of the profession. I believe there should be a limit to values, charging exorbitant prices for services—beyond anything reasonable—by the "long hours"—in many cases it being neces-

sary to resort to law processes in order to collect them, is betraying a trust, or taking unjust advantage of those who desire the best of service, and whose means will not permit of the tax on reputation. Many who have met with this experience will look to the daily papers for rates on dentistry, pass from the sublime to the ridiculous, as it were, overlooking what lies between those extremes.

I do not believe much in technical ethics. Different writers upon this subject draw the line of demarcation between professions too sharply, as in the case of the city dentist accusing the country physician of a breach of ethics because he extracted an aching tooth for his neighbor, or on the other hand the physician censuring the dentist for advising a remedy for the cure of sick headache, or wiping a chunk of soot from a patient's eye. This is not what is meant by professional ethics, but finds its application in the rules and regulations of labor unions. We should be far beyond any such petty jealousy—place our aim higher—show to the world that we are public benefactors—be honest with each other in all our dealings and carry out to the letter what is implied by the Golden Rule."

Discussion was opened by Dr. J. G. Reid.

Dr. J. G. Reid. This question of ethics is largely dependent upon one's individuality—each individual is the architect of his own ethics. Just so long as colleges continue to select men to fill their rooms indiscriminately, regardless of their moral fibre, just so long will they turn out a number of men who will become unethical and unprofessional. Ethics are seldom thought of either by the profession or laity in the concrete. Let us give this matter serious thought, let us induce others to think of it, for out of this thinking some good along the line of the Golden Rule will come to both layman and dentist.

Dr. Krause. In the old country professional schools are maintained by the government and the practitioner is largely governed by a set of rigorous rules, making it practically impossible for such exhibitions of unprofessional conduct as are seen in this country.

Dr. H. A. Gunther. I am sorry to be compelled to make the acknowledgment that from my observation the standard of den-

tistry in other countries than ours from an ethical standpoint is higher, and I sincerely hope this condition will be changed.

Dr. Nyman. Ethics is a rule of conduct embracing in its teaching honesty, dignity, refinement, and above all the application of the Golden Rule. The non-ethical compared to the ethical man stands as the artisan does to the artist. The former has no interest in his profession save what monetary gain he can get from it—the latter gives to it his best thought and his soul. In our present condition in this city I think we are sadly in need of a Dr. Parkhurst in the profession. We are in need of more competent legislation against some of the evils which have a vigorous growth among us. I believe it possible for the better elements of the profession to unite and wipe out the many cess-pools of infamy—such as some of the advertising dental parlors—which flourish in our midst.

Dr. E. Noyes. So far the discussion has only assailed that violation of ethics to be found in advertising. I believe that any person who has promised to write a paper for any dental society and fails to so do without a proper excuse to the society, violates the code of ethics and should be expelled without a trial.

Ethics relate to morals, and I do not believe that a code of ethics should exclude a skillful, honest man.

It depends upon the moral fibre and strong character of the man whether he be ethical or otherwise in his profession. Colleges should be careful concerning the moral quality of the pupils they receive and continue in the school.

Dr. Ewing. In the face of stupendous opposition and odds in our professional battle I believe the young men who are striving for a practice and still living up to our code of ethics are deserving of commendation.

Dr. Coltrin. I have heard a good deal concerning the written code this evening but little or nothing has been said concerning those little ethical things too small to be written but which go to make up one stupendous whole.

Dr. C. N. Johnson. In considering the subject of dental ethics I am convinced that the highest essence of ethics relates not so much to the printed code as to the unwritten law of ethics which should govern us in our daily relations with the profession and the public. As an illustration of what I mean I will relate an incident that

occurred in my office today. A lady applied to me last week requesting me to make her an upper plate, saying that she had been wearing one made by Dr. ——— (a member of this society), but that it had broken and she wanted a better one. I asked her to bring the broken plate to my office and she did so today. I examined it and found the workmanship on it good. I at once referred her back to the dentist who made it, telling her that she was misjudging the quality of his work, and assuring her that he would deal justly with her. If, on examining the plate for the lady today, I had discovered evidence of gross carelessness or incapacity on the part of the dentist, I should not have hesitated one moment about accepting the patient and doing her work. We are under fully as great an obligation in this respect to the patient as we are to the practitioner. A perfectly honest and gentlemanly dealing with both parties constitutes, it seems to me, the highest dental ethics.

Dr. F. H. Zinn. Ethics hinges upon honesty—it largely depends upon the character of the individual as to his ethical bearing. To raise our profession to a higher ethical standard we should be in harmony with all the impulses that look to that end. We should not block legislation for the betterment of our profession simply because we are not the framers of the bill.

C. E. Bentley. I am encouraged because I know such discussions as these are helpful. The college and the society are the ethical incubators; a man may have a strong moral bias, but if he sees his school doing the very thing he in the lecture room has been taught not to do, he is likely to follow the path of his school. Societies should have these discussions often. They make us think of ethics in its concrete form; remind us of those many unwritten things which form so important a factor in the whole equation; and keep before our eyes the duty we owe to our fellow-men, fellow-practitioners, and to ourselves.

The Dental Review for March, 1895.

"Dental Amalgams, Their Uses and Abuses," by A. C. Hewitt, D. D. S., Chicago. Dr. Hewitt in writing on the above subject says,—Dental Amalgams have their uses, and are also much abused. No dentist of ability and experience will question the veracity of either statement. The abuse is widespread, and is to

be found among the rich and educated, as well as the poor and ignorant. There seems to be a "Boston Rubber Conscience" governing the dialectics of many dentists when they reason upon this subject—e. g.—some years since I visited the office of a leading dentist in a neighboring city. A lady came in to have a tooth filled. By a few strokes of an excavator, not even drying the cavity or using an antiseptic or rubber dam, a lower molar was prepared for filling. He amalgamated some alloy in the palm of his hand, and "stuffed" the amalgam into the cavity, wiping away the surplus with his thumb. The patient paid the required fee and went away. I then inquired, "Do you not use the rubber dam in filling with amalgam?" "Oh, no," he answered, "I just hoe out the cavity and slap in the amalgam." I replied, "But such a filling will last only a short time." "I know it," said he, "but she will come back and I will get another fee." Other cases of a similar nature were cited. We all know that a large majority of amalgam fillings are faulty, but by no means are they necessarily so. The fault does not lie in the alloys, but rather in the amalgamation and manipulation; in the lazy, shiftless, dishonorable, and dishonest workmanship. There are honorable men in our profession, whose daily and yearly work prove what I say. Prof. A. O. Hunt gave an unanswerable argument in favor of the use of amalgam, and an object lesson of its abuse, when he once demonstrated in clinic that no more free mercury could be brought to the surface of the filling. He also demonstrated that if the excess of mercury were removed and the mass packed with uniform density, and allowed to crystallize in that position, no spheroidal tendency would be manifested. These results could not have been produced without the use of the rubber dam, hence one of the abuses in the use of amalgam, viz, "submarine working." And another is the amalgamation of the alloy in the palm of the hand, which is oftentimes quite moist, thus increasing the porosity of the amalgam and rendering it less capable of barring out the oral fluids. I am an enthusiastic advocate of gold as a filling material, other things being equal. Oftentimes for various reasons amalgam seems preferable, and when used demands skill and honest endeavor on the part of the operator. To my mind there are certain teeth and classes of cavities that need something different from amalgams in general use.

This element is copper, which is the only metal used in alloys that possesses therapeutic properties. A filling should be both a stopping and a remedial agent. Believing myself right in these ideas, about ten years ago I began the manufacture (for my own use) of a copper amalgam, the formula of which has been published in the *Review*. It seems to be improved by age, and of late I have used only that made a year previous. I place this amalgam second only to gold as a filling material. The usual objections to the use of copper amalgam, viz: cupping or washing out on the occluding surfaces, discoloration of the tooth structure, and also of contiguous gold work, do not occur in the use of this amalgam when worked as I shall describe. Having prepared the cavity, asepticated and dried it, I flood the tooth with the following—

Alcohol (high proof)..... oz. ij
Beta Naphthol..... grs. x

If softened dentine is to be retained, I dry the cavity thoroughly with hot air, then coat it with a varnish prepared as follows—

Dammar Varnish.....
Sandarac Varnish..... aa oz. ij
Alcohol oz. j
Beta Naphthol..... grs. x

This is principally to furnish a sticky base upon which to burnish the first layer of amalgam. To prepare the amalgam for filling at least twice the quantity necessary to fill the cavity should be taken. Place this in a steel spoon, and hold it over a spirit lamp flame till globules of mercury appear, removing from the heat just at the point at which the mercury begins to vaporize. Place the heated ingot on a hard maple block with smooth surface, crush and triturate with the convex side of the spoon. This process may be facilitated by rubbing with the ball of the finger, the latter being protected with a leather "hut." The amalgam should never be rubbed in the palm of the hand because of the moisture and oil present. Neither do I favor trituration in a mortar because of the liability of stripping the crystals of copper of their covering of mercury. Then a small particle of the amalgam is placed in the cavity and with a smooth-pointed plugger is burnished thoroughly against every portion of the cavity walls. This

is easily accomplished because the varnish catches the crystals and holds them under the burnisher. If the cavity has been thoroughly sterilized and dried, and the burnishing thoroughly done, a layer of varnish and amalgam will be pressed in and upon the dentinal tubules and enamel impervious to moisture and beyond which no salts of copper can be precipitated to discolor the tooth. The excess of mercury is removed from the remainder of the amalgam by thoroughly squeezing it in strong muslin or chamois skin with a pair of strong pliers. This leaves it in dry hard chunks. These are thoroughly packed in the cavity and against the walls, and the matrix, if one is used, by means of a small smooth-pointed plugger. The surplus mercury resultant upon condensing the amalgam, is absorbed with small pieces of No. 2 Watt's crystal gold, heated in an alcohol flame as for annealing. With a rounded smooth point, the filling is burnished to the desired surface, passing the instrument from the centre to the walls and over the margins. Then the filling is coated with sandarac varnish, before the dam is removed, to thoroughly protect it from the moisture. At a subsequent sitting the filling is smoothed and polished. In conclusion I wish to emphasize the necessity for careful painstaking work, absolutely excluding moisture. For submarine work copper amalgam outstrips any other in preservative qualities, but the filling and tooth will become discolored.

"Local Anæsthesia," by O. A. Weiss, D. M. D.; read before the Minneapolis Dental Society, Nov. 21, 1894. Modern general anæsthesia has been known for about fifty years, and has proven itself to be of inestimable value in surgery, yet owing to the degree of uncertainty attendant upon its use, and its action upon the nerve centers of the most vital functions of life, efforts have been directed toward the localization of anæsthesia, acting only upon the part to be operated upon, and allowing the functions of all other parts to proceed in their usual manner. One of the earliest agents used for the production of local anæsthesia was refrigeration, for which mixtures of ice and salt were used in early days, and later, atomization of highly volatile liquids. This was satisfactory from the standpoint of anæsthesia, but the after results, as well as the application, were very unpleasant. Electricity has also been used as a local anæsthetic. The positive electrode is

placed on the part to be anæsthetized while the negative pole is placed in the patient's hand, beginning with a light current, and increasing gradually as much as can be borne without pain. This is not much used at present. Next, we have drugs, of which the most important are carbolic acid, tincture of aconite, belladonna, cocaine, and some of the essential oils like cinnamon and cloves; cocaine being the most effective.

Its anæsthetic properties were first brought to the notice of the profession by Dr. Karl Roller, of Vienna, in 1884. Cocaine is a dangerous drug, but so are many others which are in constant use, consequently for this reason alone, it should not be banished from our materia medica, as some claim it should be. One of the first things to consider in the use of a potent drug is the dose. 1 gr. is the average maximum dose by the mouth. The fact that *the dose of any drug by hypodermatic injection should not be more than one-half of that given by the mouth*, is overlooked by many, and of course death is caused by an over-dose. Another complaint against the use of cocaine is that sloughing follows its use. This will not be the case if asepsis, one of the first elements in surgery, is carefully observed. A syringe must never be used upon some other part of the body after having used it in the mouth, without first sterilizing the needle, lest that part be inoculated with some of the many bacteria found in the mouth.

Thus excessive doses, and uncleanness are responsible for a majority of the fatal results of the use of cocaine. As there are idiosyncrasies for cocaine as for many other drugs, in its first use upon a new patient you should begin with the minimum dose, then increase the dose as necessity demands. Next of importance to the size of the dose, is the preparation used. The simpler the formula the better, on account of the incompatibility of drugs. Correctives are only needed when toxic symptoms are present, and then must be given in medicinal doses to be of any value, and must be varied to meet the case in hand; as no one corrective will meet all cases. Paul Reclus, of Paris, who has used cocaine in more than 1200 operations without an accident, uses a simple solution of 2 per cent of cocaine with an antiseptic only. Reclus also says that he believes the so-called toxic actions as reported in many cases are due to emotional causes. He says, "A lady went to a dentist to have a tooth extracted, requesting him to use

cocaine, yet said she was afraid the cocaine would kill her. He filled his syringe with distilled water and injected it; the same instant the patient fell back in syncope. You have all seen similar cases and think nothing of them, yet when a case of this kind happens after using cocaine, you give cocaine the full credit. I have used a simple solution of 4 per cent and an antiseptic for the past two years, with only one case of real intoxication, and sloughing has never occurred. It has been found that the concentration of the solution has much to do with the production of intoxication." He says that 1 gr. of cocaine in a 10 per cent solution may cause profound intoxication, but the same quantity of cocaine in a 2 per cent solution is accompanied with no danger at all. Dr. Cholewa, of Berlin, in a discourse before the Berlin Medical Society, upon infiltration anæsthesia, as he terms it, excited great interest. He does not confine his operations to minor surgery but performs many major operations as well. Out of 537 patients he had operated upon, general anæsthesia was used only 16 times, and then only because of insurmountable fear or hysteria, the personally expressed wish of the patient, or where the infiltration method had failed.

The solution used consists of a 1-10 per cent solution of cocaine, in from 5 to 10 parts of a 2-10 per cent solution of common salt. This makes a solution containing from 1-50 to 1-100 of 1 per cent of cocaine. Do not use any of the patent nostrums in the market, the preparation of which you know nothing. Make your own preparations by obtaining cocaine in the form of crystals or in tablets of definite quantity, dissolve in distilled water, and add 4 or 5 drops of carbolic acid to the ounce of the solution. There are two things to consider in cases of intoxication; to strengthen the heart's action, and to diminish the increased arterial pressure. For the former we have no better drug than digitalis, and for the latter there is no better than amyl nitrite. Cocaine may be used, not only in the extraction of teeth, but also in the preparation of roots for crowns, and when setting crowns where the band passes under the free margin of the gum. In the adjustment of rubber dam clamps, they may be carried to the alveolar process if necessary without pain by the use of two or three drops of cocaine. It may be used in any operation where the soft tissues are involved. The first requisite in using the solu-

tion is a good hypodermatic syringe properly kept. Make the first injection in the most accessible place, and in making each subsequent injection, enter the needle within the border of the anesthetized area, thus avoiding the pain of a new puncture, always being careful not to penetrate the blood vessels of appreciable size. Children will often not tolerate the pain from the insertion of the needle.

All persons with serious cardiac lesions are unfavorable subjects; also persons of cyanotic appearance. It should be used with caution upon pregnant women. Antidotes and resuscitants should always be at hand. The patient should always be placed in the recumbent position in order to assist circulation. Either alcoholic preparations or caffeine may be administered previous to the injection of the cocaine when the patient appears to be an unfavorable subject.

The International Dental Journal for March, 1895.

"The Relation of Modern Therapeutics to the Practice of Dentistry," read before the American Academy of Dental Science, Boston, Oct., 1894, by Robert N. Greenleaf, M. D. We will contrast modern therapeutics with historical therapeutics, for the purpose of considering what it really is. In early days, medicine passed through a stage which as Brunton says, may be called the "make believe" stage of medicine. Just as a child peoples the woods with goblins and various queer creatures, all real to him, and just as he acts towards these according to his belief, so physicians of olden times persuaded themselves of the reality of their delusions and acted accordingly—while now the attitude towards modern therapeutics is the actual knowledge of the facts in the case. The "empiric" method has given us much of our knowledge of drugs, and is not content with the "make believe" attitude of thought, but values a fact according as it has happened in the same way in repeated instances, even if it does not understand the "why." However, empiricism is not the attitude of to-day—while it is a step in therapeutic progress, it is inadequate. It can not explain and say why other remedies may not act equally well; therefore let your studies be of this modern type of thought, and in the spirit of scientific inquiry. The "make believe" thinker says grape acids are injurious because a certain person's teeth de-

cayed after eating grapes. The scientific student will not be satisfied with this decision, but will inquire into the previous state of health of the person, and will make a study of the case, until he finally comes to a correct solution of the problem. In the study preparatory to the discussions of any of the great topics of your specialty the best and surest results will be obtained by following the scientific train of thought. Pharmacology has revolutionized our knowledge of drugs. Of the several things it has accomplished these stand out conspicuously: 1. By careful chemical examination it has isolated the active principles of many drugs, thus permitting their administration without the accompaniment of inert or deleterious principles. 2. By careful study of the principles thus isolated it has been found possible to produce synthetically similar, and in some cases more potent or more conveniently obtained, active principles. 3. By careful experimental study of the action of drugs on animals, a correct understanding of their action and a degree of exactness of dosage have been obtained, which have placed the therapeutics of to-day to a great extent on a par with other branches of science. An acquaintance with the life-history of the cells of a complex organism, has paved the way for knowledge of this character. However, the therapist of to-day has learned that drugs are only one form of weapon which he may use in the battle against disease, and recognizes the strength of others, such as the great importance of his own surgical appliances and operations.

Medicine is classified into two general divisions—those acting *systematically*, and those acting *extraneously*. The anodynes, the stimulants, the cathartics, are illustrations of Division I.

Disinfectants, anthelmintics, are illustrations of Division II. These are again divisible into smaller groups, viz.: *general* and *local*, which groups are also subdivided. We have three representatives of the sub-class of a general action, viz.: 1. Nervines, 2. Cardiacs, 3. Nutrients. Each of these sub-classes is divided into its respective smaller groups.

Representatives of the sub-class of locally-acting medicines are some of the astringent drugs, as rubefacients.

The following illustrates how these drugs are studied in order to ascertain their action. *Nux Vomica* is a drug known for a long time to have poisonous properties. Chemists separated its

alkaloids, strychnia and brucia, made salts of them, crystallized them, and found that they existed in the plant in combination with igasuric acid. Then the physiologist and the pharmacologist took these products, and experimented with them on various animals. These experiments led to the conclusion that strychnia, besides other actions, produces its effects by direct stimulation of the anterior part of the spinal cord. Thus the physician can stimulate the flagging nerves of any organ. With this powerful stimulant, or with atropia, digitalis, or morphia, he is sometimes privileged to stand between a patient's life and death.

The family of antiseptic drugs is one of the groups which is worthy of the dentist's most careful study. We have a long list of drugs which arrest or destroy the activity of the micro-organisms. Besides corrosive sublimate and other powerful germicides, there are a host of others, as the volatile oils, etc. Another family of especial value to the dentist is that of anæsthetics. Every dentist should understand the uses and dangers of anæsthetics, also their indications and contra-indications; otherwise he must be regarded as criminal to dare to use such weapons. Among the most common are nitrous oxide, ether, chloroform and bromide.

The local anæsthetic cocaine is delirifacient as well as an anæsthetic, and is a dangerous weapon, hence most dentists are deterred from using it, for the surgeons have found it capable of inducing a "habit" more treacherous, more deadly, than those of alcohol and opium. Closely allied to the family of anæsthetics are the somnifacients such as opium, and also the antispasmodics such as asafoetida. We will include among them also members of the group of antipyretics, such as antipyrin and phenacetin, which possess anodyne properties as well. The use of these drugs requires the study of underlying physical conditions, for which the dentist has not sufficient time, hence I should advise him, when he recognizes the need exists, to obtain the proper counsel from the specialist competent to give it. The ability to recognize this need comes from the study of the fundamental principles of medicine. Such broader knowledge is to-day considered so desirable that the best dental schools have endeavored to incorporate it among their requirements. Also, I consider a

knowledge of expectorants, sialagogues, and the like, should form a part of his general training. Sialagogues, such as cubebs and pellitory might relieve a toothache, particularly of a rheumatic type, simply by relieving a congestion. Mercury also is a sialagogue as well as an alterative and antiseptic. There are also emetics, cathartics, and anthelmintics, each containing some drug which properly used may relieve much suffering and prevent serious illness. There are astringents and rubefacients, also protectives and absorbents, each group having members especially useful to dentists. I would emphasize the fact that more knowledge is to come, not by approaching it as does the "make-believe," or as the "empiricist," but as the therapist is doing, viz.—from the standpoint of the modern scientist. Furthermore, I would emphasize that the therapist has ascertained many facts, classified and arranged them for your service, some of which you are using daily, and others which you would find of much value.

"Moderation in Practice and in Statement," by S. G. Perry, D. D. S., N. Y. City; read before the N. Y. Odontological Society, Nov. 20, 1894. In the strict sense of the term, the dentist, as a professional, is very inexact in practice, and also in the tabulation and report of experience, notwithstanding we are repeatedly told we are a very scientific body of men, and that our profession is a very exact one. Conflicting statements are often made in our discussions. Of course there are certain fundamental facts on which our practice rests. Our practice cannot be strictly scientific, as for instance certain filling materials, properly used, arrest the decay of the teeth, but the same materials, improperly used, do not save the teeth for any length of time. Our personality determines largely the character of our practice. To eliminate as far as possible what the astronomers call the "personal equation" is a requirement of the first importance, if we are to lead the scientific life. Science is concerned with facts, not fancies, and he who can discover the facts, and not be influenced by the fancies, is the man whose influence will be felt most in the department of science in which he works; and further, if after becoming certain of our facts, I propose we adopt the cold, careful, accurate language of science in describing them, then our literature would not be so full of wild statements of opinions hysterically expressed. Exaggeration of

statement may be overlooked in the affairs of the world, but in science, looseness of thinking and speaking is not permitted, and yet in our profession it is common, because we have not yet adopted the accuracy expected of those who lead the scientific life. Words are the tools of the mind. If a man has the scientific training and spirit, his words will be few but to the point. The term 'tooth carpenter' may be applied to some men who are extremely skilful, as well as to the botch dentist. They exaggerate the importance of their handicraft, and confine themselves within such a narrow range, that they lose the larger, wider view, and fail to comprehend the significance of proper dental care. In the human mouth natural laws that cannot be set aside are at work, and about all that can be done after all is to nurse, and help, and conserve, hence I would substitute the dental "nurse" for the tooth-carpenter; however there can be no argument made against the nimble fingers that can produce perfect work when perfect work is really required. There exists in our profession a certain kind of inattention on the part of many, and an unconscious intolerance of all ideas and modes of practice that are not in accordance with their own, so that any who venture to express an opinion must do so at the risk of being misunderstood. Opinions of those who have had long experience have great value, but a man's opinions must not be confounded with his facts—the facts that he reports speak for themselves, and are of value as they are clear and plain, but the value of his opinions will depend upon the combination of mental faculties that make up what we call a level head. I doubt if we ever yet saw a more perfect example of an unselfish man than one who is a true follower of science in the fullest meaning of that term. His love of science will be so strong that his only concern will be to do the true thing, and this will be the right one, and in doing this, he will show that he has the level head before mentioned, and the chances are that the true and right thing will be the moderate one. In dental practice he will not use gold exclusively; on the other hand, he will not assert without a qualifying phrase that it is a true failure. He will not use the plastics without regard to the age of the patient, and the condition of the teeth, and as he grows old himself, he will be on his guard against them because they are easy to use. A young dentist must guard against the over-confidence of youth. He

must also be careful about the extraction of the sixth-year molars, because some one else has said they must come out, and he will be slow in undertaking the regulation of teeth that in a few years will regulate themselves. Neither will he condemn as bad practice that which does not conform to his own opinions, or say that a certain piece of work was done badly, when he knows little or nothing of the conditions under which it was done. By the time a man has seen a set of teeth develop from early childhood to adult life, and has noted all the changes that occur during that time, he may be ready to practice dentistry wisely in its widest sense, though by that time he may be too old to perform the different operations. He must always exercise moderation in practice—not being led away by the vagaries of bridge-work, which is only a modified and greatly improved form of applying an old-fashioned skeleton-plate fastened with clasps. The natural teeth rest in a cushioned socket that allows a little play, and when this immovable bridge is cemented fast, the teeth are held in an immovable manner, and the bridge may not be removed for cleaning. The bridge may eventually come out, but when it does, the teeth may come with it.

The dentist should be pleasant and sympathetic in the operating room, kind to all who need gentle treatment, particularly the little children. In fact, he should be an all-round man. He should have many sides, and *moderation* ought to be stamped on every one of them.

"Cancer of the Tongue," read before the Academy of Stomatology, Philadelphia, by E. W. Stevens, M. D. The structure and surroundings of the tongue render it peculiarly liable to cancer. It is always of the squamous-celled, epithelial type. Sarcoma is exceedingly rare, only six cases being recorded in surgical literature.

Epithelial cancer occurs more frequently in the tongue than in any other organ except the uterus. Lingual cancer rarely ever develops before 30 years of age. One case occurring as early as the twenty-second year was recorded by Dr. Shepard, of Montreal. The oldest case on record was observed by Mr. Jessett in the cancer hospital, the patient being 79 years old. The majority of cases occur between the ages of 45 and 60 years. Epithelial cancer occurs more frequently in men than in women. Heredity seems

to be a very unimportant factor in the development of lingual cancer. Says Mr. Barker, "It would appear as though the occurrence of cancer in the families of those who have the disease in the tongue was little more than a coincidence." Predisposition of smokers seems unimportant. Cancer not occurring in those addicted to the habit more frequently than in those who are not.

Formation of cancer in a large majority of cases is preceded by an abnormal condition of the tongue's surface, designated under various names, chiefest among which is leucoma. Leucoma of the tongue is never seen before the age of twenty years. It appears as the result of syphilis, or an irritant, as rough teeth, smoking or spirit drinking. It is a chronic inflammation of the superficial mucous membrane, and becomes bluish white in color. The tongue's surface becomes smooth and glazed, occasionally marked by shallow furrows. This affection should always be considered a predisposing cause of cancer. Carcinoma may first appear under very wide limits, occurring as a fissure or ulcer, a pimple or tubercle, a warty growth, or more rarely as a lump or nodule in the substance of the tongue. These lesions being constantly subjected to irritation gradually verge into cancerous growths; Butlin and Hutchinson affirm that if there is one means more certain than another to transform a simple into a cancerous growth it is the use of caustics, such as the solid nitrate of silver.

Differential diagnosis between cancer and tuberculous ulcer is frequently very difficult. Tubercular ulcer is always secondary to deposits of tubercle in the lungs, and when a patient presents with ulcer on the tongue and no history of syphilis, but showing unmistakable signs of phthisis such ulcer is almost invariably tubercular.

Secondary syphilitic affections of the tongue would probably never be taken for cancer. But the points of resemblance between cancer and the lesions of tertiary syphilis are so numerous and striking that it is impossible to distinguish between them without resorting to anti-syphilitic treatment, which, in cases of any doubt, should always be employed. An early correct diagnosis of this affection is very important.

According to Butlin the hope of the treatment, which is surgical, in regard to lingual cancer lies in prevention rather than in

cure. As the pre-cancerous conditions become more easily recognized, and the best means of removing them become known, we may expect to see a decrease in the number of cases of lingual cancer.

DISCUSSION.

Dr. H. H. Burchard took exception to the statement of the essayist that heredity has little to do with the development of carcinoma, and stated that there does seem to be a special diathesis connected with carcinoma, for all who are subject to the same sources of local irritation are not victims. In several individuals some local disease process may arise, and show for a time the same conditions, in one, carcinoma results, in the others, it does not. He also stated that clinical diagnosis may be equally as undeterminate as microscopic diagnosis, and cited two cases in support of his statement.

Dr. James Truman considered this matter of considerable importance to the dentist, although confessing at the same time to know but little about it. In tumors of the mouth he considers it very difficult, ordinarily, to distinguish between those that are benign and those that are malignant. He believes that dentists generally are not careful enough to remove all rough places from the mouth, and asserts that he is a strong believer in heredity.

Dr. M. H. Cryer agreed almost entirely in the views of the essayist as expressed, but said if there is anything in the germ theory, and we have an ulcer that forms a ground or nidus for germs to take root and produce a growth, if we should amputate, do we not make more ground or more of a sore in which the germs may proliferate, and would not death ensue much sooner? He asked what mouth-wash Dr. Stevens uses in the treatment of these cases.

Dr. Stevens replied that the wash he generally uses is a solution of ten grains of chromic acid to the ounce of water, which reduces the pain, and acts as a superficial caustic. As all strong caustics, as nitrate of silver, should be avoided, the chromic acid is more beneficial. With regard to the question raised by Dr. Cryer as to furnishing a nidus for new growths of carcinoma by amputating a portion of the tongue, it must be said that the etiology of cancer in the cases reported in the paper has remained to the present day one of the most obscure problems of

medicine. The theory that cancer is of specific microbic origin has long since been defeated, and yet there seems to be strong clinical reasons for believing it to be an infectious disease. It is only very recently that leucoma has been considered a predisposing cause of cancer. Now many surgeons regard it as more significant of cancer than ulcer of the tongue.

Dr. Jameson, after citing a case—a man about fifty years of age, who had an ugly looking sore on the median line of the lip, and who was operated upon three different times, died in two and a half years after his attention had been called to it,—stated that he thinks the province of the dentist is to be on the look-out for these conditions and recommend them early to a specialist.

The Pacific Coast Dentist for March, 1895.

"Ether in Dentistry," by F. D. Bullard, M. D., Los Angeles; read before the Odontological Society, of So. California, Feb. 7, 1895. The writer says that chloroform is more dangerous than ether—that fifteen die under chloroform where four die in etherization. The respiratory center is the danger point, the functional paralysis advancing from the cortex down, and from the sensory periphery up, invading this center causes death. Ether usually kills by paralysis of respiration, while chloroform strikes the heart as well; so ether generally gives warning, which chloroform may or may not, and probably one-half of chloroform fatalities take place before complete insensibility is reached. While chloroform is a very convenient anæsthetic, and probably the best for many operations, it is not the best for extraction of teeth. A method of administering ether is given which the writer claims is very easy and makes ether as safe as any anæsthetic. He uses the closed method by means of a slightly modified Parkinson inhaler, which is lighter, simpler and cheaper, and consists of a rubber mouth-piece, a metal mask with wire cage for a sponge, and rubber bag. The metal part is dipped in hot water prior to the application of ether, and the patient inhales *warm ether vapor*, the rubber bag excluding to a great extent, at least at first, the atmospheric air. The following claims are advanced in its favor: 1st, ease and rapidity of anæsthesia; 2nd, small discomfort to patient; 3rd, ability to push ether rapidly; 4th, little ether used—one-half to one ounce in induction of anæsthesia, and about as much every

half hour thereafter; 5th, non-saturation of patient with ether, quick recovery, little or no vomiting; 6th, ether confined to inhaler, no vapor in room; 7th, increased safety, because vapor is warmed the following dangers are dispensed with: spasm of glottis, ethereal pneumonia and bronchitis; nephritis, because but little is taken; explosions from lamp or cautery, because ether is confined to inhaler; 8th, no assistance needed by the dentist. The writer does not think that the quickness of anæsthesia by this method denotes asphyxia, but he believes that ether produces a molecular paralysis of the nerve center, and by this method a large amount is quickly inhaled and carried to the blood by these centers, as the warm, highly charged vapor is taken deep into the lungs almost at the outset of the inhalations.

"A New Method of Attaching Artificial Crowns to Badly Decayed Roots," by G. H. Chance, D. D. S., Portland, Ore.; read before the Stomatological Club, Feb. 26, 1895. The writer believes that almost any badly decayed root can be saved and crowned, if there remains enough sound dentine to hold securely one end of a small screw-post in place, and if the peridental surroundings are or can be made healthy. He gives a typical case to illustrate his method: A gentleman of middle age had a right upper anterior bicuspid which presented the following conditions: crown entirely gone, decay extending above and beyond the ordinary normal gingival margin, gum badly inflamed and entirely covering up the root. At the first sitting the excess of gum tissue was removed, and after ascertaining that the root was strong enough to support a crown, the decay was removed, the concave depression in the end of root made smooth with round burs, the pulp canals opened and treated, the space between the entrance to canals and gum margin closed with cotton and sandarac varnish, then the patient was dismissed for the time being. At the next sitting the pulp canals were filled and an impression of the parts taken in modeling compound, from which a plaster cast was made, and from it dies of 'Melotte's metal' so as to strike up a thin gold cup to fit the concavity in end of root, using enough gold to allow edges of cap to extend to gum margin. The cup, when ready, was adjusted to root, and a second impression with 'the bite' was obtained, cup coming away with

impression, which was transferred to plaster cast. A Bonwill crown of proper form and shade was selected, ground, and the upper margins beveled so they would just enter and be enclosed by the edges of the gold cup, giving it somewhat the appearance of a banded Richmond crown. Then a small screw-post was inserted in each canal, and a slot was cut in the top of the cup large enough for the ends of posts to pass through. The parts were then dried, the convex surface of the cup painted with a little thick chloro-percha and slipped over the posts to its position on the root, the excess of chloro-percha being gently pressed out, and warm air used to evaporate the chloroform. Finally the crown was cemented on with oxyphosphate, and the occluding end in the cavity of the crown capped with gold, the whole forming a firm and satisfactory piece of work, which after several months use is still doing good service.

The writer believes that much better results can be obtained by the use of a Bonwill crown, or one constructed on the Bonwill principle, in connection with a screw-post and swaged cup to cover the end of the root, than with any other crown in which the pin is directly attached to the porcelain; and, in case the porcelain be broken, the Bonwill crown can be easily replaced without disturbance to the root.

"Dental Jurisprudence," by H. R. Wiley, A. B., San Francisco. The writer says that the young dentist should begin the practice of his profession with at least some slight knowledge of the legal responsibilities attending it, so that he may not become involved in any litigation, and may be able to defend himself from black-mailing schemes, etc. The significance of this branch of knowledge to the dentist, as a factor in a successful professional career, entitles it to recognition as a necessary part of the curriculum of all dental colleges. They will undoubtedly give to this subject due consideration in the near future. A half-dozen or more lectures presenting the subject, relieved in a measure from the burden of technical terms and prepared with due regard to simplicity and the easy application of the principles enunciated, would prove of incalculable value to at least some of the students.

The Dental Register for March, 1895.

"Odontalgia," by N. S. Hoff, D. D. S., Ann Arbor, Mich.; read before the Ohio State Dental Society, December, 1894. The

writer defines odontalgia as functional disturbances of the dental organs and tissues, and classifies it under the following five heads: (a) exposure of the dentine by accident or caries; (b) exposure and disease of the pulp; (c) disease of the peridental tissues; (d) new growths in the pulp tissue or upon the roots; (e) reflex irritation.

It is not clearly understood why exposed dentine causes toothache, as there is a great difference in the susceptibility of dentine in different patients, a slight exposure will cause pain to some persons, while an extensive exposure in others will cause little or no pain; at different periods exposed dentine will be painful in the same persons; and different teeth in the same mouth will vary in sensibility. Formerly pain in dentine was accounted for on the theory that it was subject to inflammatory processes; but the absence of the essential elements of inflammation disproves this theory. Some think the dentine has sensory nerve fibers, but are unable to demonstrate their existence, or to trace any connection between the nerves of the pulp and the organic tissue of the dentine. Bodecker, in his 'Anatomy and Pathology of the Teeth,' says: "It is impossible to admit of the existence of a connective tissue holding nerves alone in its constituent soft parts. Neither have we, nor has Retzius in his recent investigations, been able to trace a direct inosculation of the dentinal fibrillae with the axis fibrillae of the nerves so abundantly distributed throughout the pulp tissue. As soon, however, as we admit that the dentinal fibrillae are formations of living matter, the same as are the nerves, all difficulties vanish in explaining transmission of sensation from the periphery of the dentine to the nerves of the pulp tissue. Living matter is contractile. Nerves are made up of living matter, and owing to their reticulated or beaded structure are fittest for that transmission of contractions from the periphery to the nervous centers which we call sensation. Contraction of the dentinal fibers transmitted into the reticulum of protoplasm at the periphery of the pulp, and thence in the ultimate nerve fibrillae—all of which formations are proved to be continuous—is sufficient to explain the transmission of sensation, or speaking bluntly, of pain." This theory has much to commend it, and can be accepted until we are given one more plausible; for cold, heat, escharotics,

etc., which produce contraction in protoplasm and organized tissue elsewhere, also produce pain when applied to exposed dentine.

The conditions surrounding exposure and diseases of the pulp are different and more complicated, requiring prompt treatment; the symptoms are frequently manifested with great energy, because of the peculiar environment of the pulp and its sensitive nature. The pulp is richly endowed with blood vessels and nerves, and especially toward the periphery with blood capillaries. The odontoblast layer on the periphery of the pulp is not highly sensitive, but the granular layer beneath contains the endings of the nerves and is very sensitive. Irritation of the exposed pulp is followed by pain, its severity depending on the character of the irritant, and is accompanied by a disturbance of circulation. The first effect is contraction of the tissues and anemia, quickly followed by relaxation and a determination of blood, congestion and incipient inflammation. This condition requires nice manipulation to prevent inflammation; a removal of all irritants, the application of sedatives, disinfection with a non-cauterant germicide, the application of an antiseptic, and a careful adaptation of a protecting filling. Inflammation of the pulp comes from inoculation under conditions of general systemic infirmity, or because of excessive exposure, and irritation from various excitants. Besides the usual symptoms of irritation, the entire pulp is persistently congested, which partially suspends its function. There is not only acute pain, but the tissues become hypersensitive, and this condition cannot be treated with the ordinary local remedies. In most instances the pulp cannot be saved, but in some it can be, even after extensive inflammation. So great care should be used in determining whether or not a pulp can be saved. A temporary relief from pain can be obtained by the removal of all local irritants; the application of an astringent, non-irritating sedative; an antiseptic dressing covered with a suitable material; counter stimulation of the systemic eliminating organs to withdraw the excess of fluid from the pulp, or a heart sedative to enable the pulp tissues to recuperate. When the inflammation has subsided, the pulp may be covered with a non-irritant filling material, and the carious cavity filled with some more resistant material. Judgment must be used for individual cases, but where much service will be required of a tooth, it is better to destroy the pulp. Gangrene of the pulp may involve

the whole pulp or only the exposed surface. Where the latter is the case it takes the form of a slough, with little pain except when irritated, but sufficiently troublesome to require attention. While some practitioners advocate excising the diseased portion and saving the remainder, it is not generally successful. Pulp gangrene is very painful when the pulp is inclosed by fillings or debris of caries, as the generation of gas creates pressure and irritation, and as the pulp is congested, unless the irritation be removed, dissolution will follow. The excessive pain can be reduced by opening directly into the pulp chamber to allow the gas to escape; after which the pulp can be anæsthetized and removed, and the canal sterilized and filled. It is often difficult to locate the affected tooth, as there may be no complication with the peridental membrane, and through reflex irritation the pain will be felt in another tooth, or in the eye, ear and face. Extreme heat or cold is a good test, as heat expands the gas and so causes more pain; and cold, while it pains at first through shock, condenses the gas and contracts the tissues, which restores the tone to the blood vessels, thus giving relief. Percussion will not aid much unless there is peridental inflammation. Putrefactive changes may be determined by difference in resonance. Reflected light will help in noting the difference in opacity. When a pulp is in this condition, it is beyond treatment, and the saving of the tooth must be looked to. When a patient cannot endure the drilling necessary to remove the pulp, the heart's action may be depressed with drugs, and a warm poultice applied over the region of the affected tooth to relieve congestion and prevent pericemental irritation. When the pulp can be reached at once, the disorganized tissue should be cleared away, the dam put on, and the pulp injected with cocaine and removed. If there has been no suppuration, the tooth may be sterilized and filled at once, but if gangrene has taken place it is better to disinfect and defer filling canal until subsequently. Tumefaction is rare, and usually is simply hyperplasia, an excessive growth of the basis substance, which is not very painful. The nerve supply is scant, but the blood supply is abundant. It is simply a pathological tissue and cannot be restored to its normal condition. It should always be destroyed, which can be done by anæsthetizing and removing by an operation, as cauterizing chemicals produce much pain and are difficult to manipulate.

Toothache from disease of the peridental membrane is not uncommon, and as the membrane is easily inoculated from a diseased pulp, most cases come from a destructive inflammation of the pulp. The environment of this membrane is similar to that of the pulp, its nerve supply is not so rich, but it has a liberal blood supply. When congested by inflammation it thickens and lifts the tooth, so that percussion from mastication is very painful. When the disease is produced by external irritation, such as wedging, clamps, etc., it will soon recover; but when brought on by infection from the pulp, or by irritant chemicals, it may be serious and very painful. When pericementitis is due simply to an inflamed pulp, the treatment depends upon that given the pulp, and the removal of the irritated pulp usually causes the inflammation to subside. But when the membrane has itself become inoculated, the treatment is more complicated. Sometimes it can be aborted, but usually the disease must run its course to suppuration, and if so the process should be hastened by poultices, etc. When the pus comes through to the surface, it can be drawn off by the lance and with it much of the inflammation, and this usually gives relief. The further treatment is to keep the sinus made by the pus open and clean until resolution takes place.

Calcareous growths in the pulp chamber and on the roots of the teeth are often painful. When they form in the connective tissue of the pulp or on the walls of the dentine, no excessive pain is felt; but when the formations take place in the capillaries or in the nerve tissues, they cause much pain, which may be manifested in other teeth, in the eye, ear, etc., or in facial neuralgia. The diagnosis is difficult, but all teeth with large fillings should be examined, as well as those denuded of enamel or dentine. The pulp should be removed, or the tooth extracted.

Reflex irritations should be carefully studied, as an irritation in any part of the body may manifest itself in the teeth, sometimes in sound ones, but generally in one weak from some cause. Treatment may give relief, but sometimes the tooth must be extracted. The dentist and physician should consult in such cases.

One kind of toothache can be put under the head of acute irritation, with destructive inflammation of the peridental membrane. It generally follows the removal of the pulp by various methods, and is often present when irritating germicides or anti-

septics have been used for sterilization. It sometimes follows the capping of exposed pulps and insertion of fillings. There is generally varying pain without soreness, and if from a capped pulp it is sometimes neuralgic. It is probably irritation of the nerves of the dental tissue around the tooth, and I think it is a secondary effect of the use of irritant anæsthetics.

The Ohio Dental Journal for March, 1895.

"Simple and Complicated Regulating Mechanisms; Esthetic Mechanisms; Proper and Improper Anchorage," by J. N. Farrar, M. D., D. D. S., New York City. The writer says that in mechanics simplicity is greatly to be desired, and that all first-class machines have no useless features. Every one does not sufficiently understand mechanics to realize that there can be simplicity in complicated machinery, and that is why some dentists argue against improvements in regulating appliances. These were formerly cumbersome, but have been so improved that now they constitute one of the most important features of dentistry, and are ridiculed only by those who have not sufficient skill to copy them. Any mechanism that can be easily operated and will accomplish the desired result is simple, while one which requires much care and time to manage is imperfect. If a regulating appliance is difficult to manage and painful to wear, it is more complicated than one which requires mechanical genius to fashion, but which can be managed easily and quickly, without causing pain.

Esthetic mechanisms are another phase of improved mechanics. Failures may come from the operator's lack of skill or the patient's perversity, but many failures arise from the disgust of the patient at the conspicuously black and filthy appliances. Many failures could have been avoided by the use of delicate and beautiful gold mechanisms.

In treating of anchorage the writer says that the anchor teeth should be used for moving only one tooth at a time, and that they should be examined frequently to prevent too great inclination. If they have moved too far, they should not be used again until they have regained their normal positions, but a little tilting is not dangerous, as they will all incline a little to the strain. Anchor teeth will usually settle back to their normal places, even if elevated slightly, but if elevated it may require months, so there

should be no haste about grinding them down. The more teeth that can be used for anchorage, the less danger there is of moving them, and of soreness of the sockets.

The Dental Cosmos for March, 1895.

"Coagulants and Non-Coagulants," by A. W. Harlan, M. D., D. D. S., Chicago; read before a union meeting of the First and Second District Dental Societies of New York State, Jan. 8, 1895. In ending his paper the writer says, "To recapitulate the essence of this paper, I have prepared the following conclusions:

First. True coagulators of serum-albumin are not diffusible when brought in contact with it in a tooth-root.

Second. Coagulators of the organic matrix of a tooth-root, tube contents (dentine), by the concretions of such albuminous matter prevent the further entrance of such coagulators as soon as their affinity for water is satisfied.

Third. The destruction of coagulum in such situations being a foregone conclusion through the agency of anaerobic microbes, brings about a chemical change in coagulant antiseptic which deprives it of the coagulant property, hence it passes into the circulation, and is excreted as other foreign inert bodies are discharged from different channels.

Fourth. The addition of boroglycerid to a coagulant in definite proportions so alters it that it no longer acts as a coagulant; hence it is possible for it to pass through tooth-structure and be recovered from the liquid media surrounding a tooth, when its coagulating property will be restored.

Fifth. Non-coagulants soluble in water diffuse readily through tooth-structure, as has been shown repeatedly in experiments out of the mouth, not only in egg-albumen, but likewise in serum-albumin.

Sixth. Oleaginous non-coagulants pass through the structure of a tooth quite slowly in the presence of water in serum-albumin, and oils pass through filtering solutions, showing that they displace water. The vaporizable portion of an essential oil will give to a substance which it permeates the characteristic odor in from three to six hours (Watts).

Seventh. A non-coagulant disinfectant destroys developed, and deprives the spores of anaerobic pathogenic microbes of the

power to be developed; and, as it does not coagulate albumin, it does not prepare a food for the sustenance of any accidental ingress of such developed organisms; hence the future of such teeth treated by non-coagulants is infinitely preferable to the conditions surrounding those treated by coagulants.

Eighth. A non-coagulant disinfectant completely sterilizes infected dentine by virtue of its diffusibility through it, while a coagulant either precipitates an insoluble barrier or so concretes the albuminous matter with which it comes in contact that it cannot act as a perfect sterilizer, but effectually seals infectious and poisonous matters in the dentine, which ultimately have their exit through the cementum and pericementum, depriving both structures of needed vitality."

International Dental Journal for January, 1895.

"The Relative Penetrating Power of Coagulants," by James Truman, Philadelphia; read before the Academy of Stomatology, Phila., Dec. 10, 1894. In beginning his paper the writer says, "The question of the proper material for filling root-canals has been a subject of discussion and experiment for the past half-century, or since Maynard introduced the method of filling these canals with gold. In connection with this the consideration of certain agents has led to a decided antagonism in regard to the diffusibility, coagulation, and antiseptic properties and values to be placed upon these in the general treatment of the central pulp-canal and the tubuli branching from this throughout the dentine. It has been clearly evident that the inner tubular portion, fibres of Tomes and Neumann sheaths, form no insignificant part of the organic matter of the tooth substance, and that death of the central organ means necessarily the death of the whole and subsequent decomposition of this tissue, or at least the central protoplasmic portion, the sheaths being almost indestructible. Hence the treatment of the pulp-canal, however perfectly accomplished, must fail to meet the microscopic elements in the tubes, and the decomposition taking place therein results in the discoloration of the entire tooth, and may act disastrously by septic emanations upon the vitality of the entire structure. The importance of this has not been lost sight of by intelligent operators, but the difficulties of manipulation have been serious. It has been plain that but

two methods could be relied upon to overcome the difficulty, the property of coagulation and the diffusibility of various essential oils, aided by osmotic action. Both methods have had decided advocacy and it is very probable that both have a positive value, the extent of which has as yet to be determined, for, as far as I am aware, the relative values of the systems of treatment have not been settled with satisfactory experimentation, or, if so, have not been divulged in the papers upon this subject; all the points defended by the writers seem almost entirely to be based on assumptions, imperfect experiments, or upon clinical observations."

After quoting from several writers on coagulants the writer gives the following remarks which he had made before the A. D. A. in 1889, in a discussion on root-filling: "The question that has given me much thought for the past two or three years is that no filling of canals can be perfect. Why? Because a large part of the tooth is made up of tubulated structure, the tubuli holding organic matter, and when the pulp dies the organic substance dies and decomposition begins immediately, and the sulphuretted hydrogen occasioned by that decomposition is the principal source of trouble. What should be done? My study of the subject and the results of many experiments led me to the conclusion that it was essential to prevent this decomposition, and that this could be best accomplished by coagulating the organic tissue. The coagulant best adapted for this purpose is chloride of zinc, because of its great affinity for water. It will follow moisture to the very extremities of the tubulated structure, and consequently change the character of the contents so that decomposition will not take place. I have kept coagulated albumen for months without change."

"The position taken by myself in 1889, that coagulants placed in the central canal would permeate the tubuli and coagulate the contents, remain true to-day, as the experiments in capillary tubes will demonstrate, and as was previously also demonstrated by Dr. Kirk. Some of these points were taken up seven years ago by myself, but dropped for a more favorable opportunity to continue them. My intention was to endeavor to show that coagulants would penetrate tubes of minutest character possible to be handled satisfactorily, and that this penetration was indepen-

dent of circulation. My earlier investigations seemed to warrant this belief. Diffusion is recognized in the living tooth as performing an important and continuous part in its nutrition. It seemed certain, as the tubulated portion of the dentine invariably imbibed finely-divided colored matter in solution, that therefore it must take up any other fluid, if of equal solubility, with facility. This beyond question is true. The main difficulty here being to demonstrate that the coagulation was continuous without the aid of circulation."

"The effort was, as before stated, to find results in tubes not exceeding a millimetre in diameter, and if coagulation occurred it must be through absolute contact of the agent with the albumen or gelatin used in the experiment. It was necessary to fill the minute tubes with the albumen and then seal the ends. Both processes were accomplished readily by nearly filling the tubes and then quickly melting the ends in a Bunsen burner. This proved entirely satisfactory. It was found, however, that the albumen in the tubes dried and contracted upon itself, leaving spaces. To meet this difficulty the albumen was combined with twenty per cent. of glycerin. This served an excellent purpose, and proved no interference with coagulation either in large or small tubes, with all the agents known to be positive coagulants, with one exception. It was found that mercuric chloride had little or no effect apparently on albumen and glycerin. This was repeated a number of times. It was then applied to albumen without glycerin, and coagulation was immediate. It was found, however, that glycerin simply delayed coagulation, for in the course of a few days the effect of the mercuric chloride was plainly visible in flocculent masses. This fact necessitated a repetition of all the experiments to determine their correctness. It was found that mercuric chloride was the principal one of the series seriously antagonized by the glycerin. The tubes were drawn to varying lengths not exceeding, as a rule, over 0.5 millimetre in diameter. The unit of time was fixed at ten days. The experiments were also made to include the essential oils and many agents known to be non-coagulants, for the reason that some writers have asserted that several of these produced coagulum. Further, the action on gelatin was examined into, but this was confined to but few tubes and without marked result."

"Whenever possible the effort was made to have coagulation proceed in opposition to gravity. This is beautifully shown in the test-tube. What does the work as a whole teach? 1. That coagulants do not prevent by their own action the diffusion throughout the entire tube. 2. That the penetrating power of such agents as creosote, carbolic acid, and zinc chloride, those most frequently used, varies materially. That creosote is a very poor coagulant when compared with carbolic acid, and the latter, for this purpose, is not to be compared with zinc chloride or silver nitrate. 3. That in proportion to the coagulating power of the agent will be its penetrating force independent of gravitation. No attempt was made to determine with exactness the penetrating property of essential oils, but if coloration is any indication, the tubes presented did not indicate that this is of much value in closed tubes, but this, it is acknowledged, may not apply in tubes where circulation is an adjunct to aid penetration. In order to test various agents, such as the essential oils, and also to repeat the tests with agents already used, as carbolic acid, chloride of zinc, creosote, etc., with albumen and glycerin, and without glycerin, and also the effect on gelatin, a series of tubes was prepared. It was observed that creolin gives but slight coagulating effect, oil of cloves about the same, carvacrol shows slight cloudiness, sanitas oil slight coagulation, mercuric chloride no coagulation in tube (glycerin and albumen). Tannic acid shows extended coagulation; oil of cinnamon, action marked but limited; oil of cajaput, no result; caustic potash, no result; zinc chloride in gelatin, no result; phenol sodique, partial coagulation. An attempt was made to carry staining with the coagulation. Zinc chloride was colored with carmine, with the result that the coagulation left the stain and proceeded down the tube. Eugenol is but a poor coagulator, On thymol, the effect is but slight and not continuous. A test was made to show the possible action of oxy-chloride of zinc on the contents of the tubuli in the dentine. The oxy-chloride, of the same consistency used in filling pulp-canals, was placed in the funnel portion of a small tube. It soon hardened, but the coagulating process was marked upon the albumen. It began immediately and has continued without interruption to the present time. The line of demarcation between the oxychloride and the coagulation is distinctly shown. This, probably, is one of the

most satisfactory of the tests, as it abundantly proves that contact with albumen is all that is necessary to produce coagulation with zinc chloride, and if this be possible out of the mouth, how much greater must it be under more favorable conditions in the tooth. Caustic potash was experimented upon not as a coagulant, but to observe the effect on albumen and gelatin. Though several tests were made, no visible results were produced, though this does not antagonize the recognized quality of this agent as one of the most deeply penetrating and uncontrollable caustics used on the tissues. The action of nitrate of silver in repeated tests was rather a surprise. It has generally been regarded as a superficial coagulant, but in every instance it has proved deeply penetrating, and coagulating with rapidity and certainty, very nearly equal to zinc chloride. This fact assumes some importance in connection with the use of this agent in teeth. Its rapid penetration raises the question, Can we use it without danger to the pulp in posterior teeth as has been recommended? At present I am not prepared to answer this question, but it seems as though a risk equal to that assumed in the use of zinc chloride is taken when placed in children's teeth for the prevention of caries."

"The experiments were extended to the penetration of the tooth structure by a number of coagulating agents. A large number of teeth were kept under the action of these, the pulp-canals being first slightly enlarged and filled with the agent daily. The result has not been entirely satisfactory, microscopic examination shows decided action throughout the dentine, the tubes in several sections being nearly obliterated and indicated only by fine lines; but while this demonstrates a positive change in the organic contents of the tubes, it does not absolutely show that this has been caused by the coagulant. Thus far I have been unable to carry the stain given the agent along with the coagulation. Silver nitrate in several sections penetrated in seven days two-thirds the length of the tubes, but the extreme discoloration made it impossible to follow the individual tubes except at the extreme limit of coloration. Tests were made with a variety of stains, but with no result, the coagulation invariably separating from the stain. When the color can be carried along with the coagulation, it will visually show what may be regarded as absolutely true, that the coagulant is carried in the dentinal tubes as effectually as in those exhibited."

"In the specimens prepared for the microscope, the evidence is positive to the trained eye that every tube is filled with coagulated organic matter, and this has been so frequently repeated, and with precisely the same results, that I have no hesitation in accepting it as a fact. I failed, however, to observe any change in the cementum, and I am, therefore, led to doubt the possibility of any coagulating effect in that tissue by any of the agents used."

"An attempt was made to verify Dr. Kirk's experiment of cementing a tube in a tooth, sealing the foramen, and then filling the tube with an active coagulant, as zinc chloride. Six perfectly fresh teeth were taken, tubes cemented, and foramen closed. The tubes were of varying length, the fluid in them ranging from a column of 7 to 18 centimetres. These were placed in a second tube filled with egg albumen. The result in four was that coagulation began after several hours at points indicating leakage. One of these was removed, the leak covered with paraffin, and reinserted. This has remained embedded in the albumen for over a month without any result. In two cases the leak evidently was not through defective manipulation, but appeared to be from an invisible crack in the enamel and at the bifurcation of molar roots. This demonstrates the conclusions arrived at by microscopic tests, that zinc chloride, the agent used, cannot penetrate through the cemental tissue. If this cannot be done by the force of the column of fluid, it certainly cannot by diffusion."

"In the paragraph quoted from a portion of my remarks in 1889, I stated my faith in coagulation as a remedy for discoloration and an effectual barrier to the ingress of micro-organisms into the dentinal tubes. I am still of the same opinion, the only modification I would make of these views then expressed would be that I fear the possibility of the action of the zinc chloride upon the pericementum through its penetrating power, passing out through the foraminae, if more than one exists. My observations, as heretofore stated, do not show that the use is at all dangerous if care be taken to close the upper third of the canals thoroughly before placing the coagulant in the tooth. Clinically, I have observed in one case only an action upon the pericementum, which I have been led to attribute to the zinc chloride passing through the foramen. The large clinical experience in

filling root-canals with oxychloride of zinc, now covering many years and a large number of practitioners, seems to show that it can be used without risk, provided proper precautions be taken. In the use of zinc chloride as an obtundent of sensitive dentine there cannot be two opinions. The experiments demonstrate, beyond cavil, that this agent is exceedingly dangerous to the life of the pulp, and should be abandoned for that purpose."

Letters.

A REPLY FROM OHIO.

SANDUSKY, O., March, 1895.

To the editor of the Dental Digest:

DEAR SIR:—I notice in the last number of your journal what the writer terms "a report on the result of immediate canal filling." The "report," if a description of the suffering of the patient after the operation, but with no account of the operation itself may be so considered, would indicate a failure on the part of the operator to correctly diagnose the conditions, and not a failure in the method.

Immediate canal filling cannot be successfully performed so long as there is a discharge of pus through the root, from a sac at the end of the root. Where this is the case the disease must be cured before attempting to fill. Otherwise the suffering so graphically described by the writer will certainly ensue.

The method in itself is all right, *provided*, the diagnosis, and the operative proceeding is so also. In this instance, the sufferer being a dentist, it would seem that he should have at once understood the cause and had the root filling removed promptly.

Yours truly,

E. J. WAYE.

A LETTER FROM FLORIDA.

MANATEE, FLA., April 5, 1895.

To the editor of the Dental Digest:

DEAR SIR:—On page 148 of the DENTAL DIGEST for March, Dr. C. N. Peirce speaks of a tendency shown in ancient skulls and

jaws to redevelopment of the alveolar process to take the place of the lost teeth for masticating, and says this is prevented in modern jaws by the insertion of plates. Judging from my own observation this is a rather astonishing assertion. I am aware of Prof. Peirce's high standing as a teacher. Were such a claim made by some unknown person, I would consider I was laying myself open to just criticism for occupying valuable time of your readers in its consideration. Now in a very active practice of dentistry for twenty-eight years I have never seen a case where there was the remotest tendency as he describes, while I have seen so many hundreds of cases that prove the reverse, and which I doubt not every other dentist in practice a few months has also noticed, that I wonder if Dr. Peirce was correctly reported. If any dentist has seen any tendency toward a reproduction of the alveolar process in a jaw at a point immediately antagonistic to teeth in the opposite jaw I hope he will describe it for the DIGEST. I have seen depressions in jaws opposite such teeth extending to the depth of near half an inch below the parts which were not so driven down by antagonizing teeth. My opportunity to see a great many elderly people who have not had this tendency to reproduce the alveolar process prevented by the insertion of plates, has been extensive. Hence, I have no doubt that the dental profession to a man will say that instead of Dr. Peirce's supposition being true the very opposite is universally observed.

Respectfully yours,

W. E. DRISCOLL.

A CRITICISM FROM SPRINGFIELD.

SPRINGFIELD, Mass., March 28, 1895.

Dr. J. N. Crouse,

MY DEAR SIR:—Your *printed* card requests a reply, at least, so as to save you the *labor of writing* again, etc.

I shall not subscribe for the DIGEST until it proves itself a necessity to me, you may argue that the only way to make it invaluable is to support it at once, and to a certain extent that is true, but the circumstances of this case are such that I think differently about it. I now kindly ask you to take no offense at

what I believe it to be a duty to say, believing that as a member of the D. P. A. it is perfectly proper. We are ridden pretty hard in this city by a licensee of the "Hale Method," and as a matter of course the daily questioning regarding it is considerable, but we can only say that we know nothing about it. We did think that part of the mission of the D. P. A. was to protect us from such things, but find that despite "confidential circulars," etc., we have no *real* information. We don't cry for jealousy. We are securing three square meals a day and a few other life comforts; but we *did* think the *mission* of the D. P. A. was more in the line of protection from fraud than from so-called extortionate rates from Combine Supply Houses, or, in fact, anything to do with the *trade*.

If we have put our money in for one thing and don't get it, what must we think when asked to give more to the same institution for something entirely different? So far as the labors of the D. P. A. are concerned against the I. T. C. Co., they have begun grandly and prosecuted well to the present time—though I believe the main patent (Low) has not yet been decided upon, and I am very glad to have invested in it.

If it is the object of the DIGEST "*to distribute; to arrange and reduce to a plan*" the current dental literature, it will do a great work for the busy man. I have not seen *much* of it yet.

Respectfully, A. M. Ross.

A REPLY TO THE CRITICISM.

CHICAGO, April 24, 1895.

Dr. A. M. Ross, Springfield, Mass.

DEAR DOCTOR:—Your communication of March 28th, in which you criticise the Dental Protective Association and the DIGEST was duly received. To-day is the first chance I have had to look over its contents carefully since receiving it.

I will first reply to your criticism of the DIGEST. You must perceive, or you may not be aware, perhaps, that making digests of other men's articles requires a scholarly, unprejudiced writer, and an immense amount of time. I could fill the journal with original and copied articles, and society proceedings, without cull-

ing them out or cutting them down, for a fraction of the time, labor, and expense that it takes to digest the current literature. To read all the journals, select from them the articles that have merit, reduce them to the limited space, and yet not lose the valuable portions of the papers or discussions, is no small task. If you have doubt of this, take one journal next month, make digests of the important articles, and send them to us. You will then realize something of the task, when you remember that there are about 20 journals to be read and condensed, and will hardly expect us to attain perfection in the first two numbers.

Of course, you will do as you think best about subscribing for the DIGEST, but the members of the Protective Association will certainly show themselves as very ungrateful, and as having no conception, whatever, of what has been accomplished by the Association, if they do not aid in this part of the movement. When we tell you that last year we were out of our office over two months hunting up testimony and helping get it in shape to present to the court, which does not include the time spent in the correspondence necessary to find this testimony, you can get a little idea, if you will take the trouble to think of it, of something of the work that has been necessary, and the sacrifice that has been made in behalf of the Association. You may say, what have we accomplished;—we have relieved every practitioner from any annoyance whatever from patent claimants for the last eight years, barring perhaps a half dozen who had signed licenses and by so doing deprived the Association of the power of protecting them in just one federal circuit where we did not wish to test the validity of the license contract. Only for this Association, every practitioner who crowns a root, takes articulating bites for artificial teeth, makes a bridge of any description, attaches clasps to a rubber plate, inserts an inlay— in fact any practitioner with a first class practice— would be obliged to pay at this time a royalty of from \$100 to \$500 per year, and in some instances more; we know of one firm in New York who have paid the Crown Co. \$6,000 during the last seven years as per their sworn statement; so the figures which we claim (\$3,000,000) as having been saved to the dental profession are under, rather than over, the amount. But all this saving of money and trouble to the dental profession has been done so thoroughly, and with so little trouble to anyone ex-

cept those managing the Association, that those who take but little interest in anything but themselves may not know, or have forgotten, that much which has been accomplished, has been by thorough management of the business and careful handling of the money entrusted to our care.

This work of the Association has been carried on for eight years, and during this time there have been no annual dues and no assessments, although each member in signing the by-laws empowers us with the authority "to collect assessments, in all not to exceed \$10.00," which in substance is a note for \$10.00, payable on demand. But we have never asked for an assessment. Will you be kind enough now to tell us of any other association that has accomplished as much and has not made any assessments or demands upon its members for the same length of time?

Have you any idea what would soon again be the condition of the dental profession should the Protective Association disband? Within a few weeks we have been consulted by certain ones interested in a new patent corporation, whose object is to get royalty out of the profession, to know what our position would be if they issued a circular and attempted to sell licenses for certain things on which they have patents, and which would very materially interfere with the profession if they could be enforced; but why should we protect the entire profession? Large inducements were offered us to disband the Association and let them have full sweep. We only throw this out as a suggestion, with a view of emphasizing the importance of the profession being banded together.

You are mistaken about the mission of the Protective Association. Its mission was: first, to defend the profession against demands of patentees whose claims are worthless; second, to bind the dental profession together for mutual protection, strength and helpfulness. The "Hale Method" was voluntarily taken up by the Association, investigated carefully, and all that was in it discovered; a letter was prepared and sent to all members of the Association who desired it, explaining all the formulæ and methods adopted at that time, and this without any uncertainty; and we did this at the expense of much time and considerable money. We did it because the method was a disgraceful fraud on the profession, and so thorough was the exposure that the originator left

the part of the country in which he was living and took up his abode elsewhere, as a number of the people that have been duped by him would have him arrested if he should return. With this circular letter you say you have no information. What would you like the Association to do? Come to your city and throw the man of whom you complain out of his office, or explain to the people of your city that the "Hale Method" is only a method of humbugging the community, and a very questionable method indeed.

As we are not receiving any salary, but are practicing dentistry for a living, we could hardly spare the time, otherwise we would gladly do this for you. In the meantime, Doctor, what are you doing to help your profession or to aid the reform movement? You have, we believe, paid just \$10 to help in this movement and to be benefitted thereby; nevertheless, you are a long way in advance of a great many men in the dental profession who have received all the benefits and have never contributed a dollar, not even joining the Association.

In answer to that part of your letter in which you say "If we have put our money in for one thing and don't get it, what must we think when asked to give more to the same institution for something entirely different?" We wish you to distinctly understand that the "something entirely different" to which you allude, the Dental Protective Supply Company, to the stock of which you may have been asked to subscribe, *has nothing whatever to do with the funds of the Protective Association*. This company, on the other hand, however, is offering benefits to the members of the Protective Association in the way of a reduction on goods which they can buy from it, not because it was considered that the members had not received a full benefit for their investment, but more with a hope that those who had not already joined would unite with us, so that by and by when we are worn out, the new officers of the Association can receive a reasonable compensation out of the income of a fund, properly invested, which would be thus created; and that the profession should never again be in the deplorable condition as regards defense that they were in before the Association was organized. We are glad to be able to give the members of the Association some benefit, and there are many members who have availed themselves of our supplies, and have thus saved two or three times their membership fees within the last six months.

In regard to subscribing to the stock of the Supply Company—there is no compulsion whatever about this, as it is the kind of investment that business men will take to very readily if the dental profession do not wish to avail themselves of it. It is organized on an honest basis, and we do not design watering the stock and making fortunes out of those who go in on the first investment. Within two months we have had business men offer to take all of the stock, and pay us well for our time in addition, if we would leave out our co-operation with the profession. If the dental profession do not enter into this enterprise they will have no one to blame but themselves. It is a reform movement and not a swindle, and is designed as another means of banding the dental profession together.

I remain, yours truly,

J. N. CROUSE.

ARGON.—At a meeting of the Royal Society in January last, Lord Rayleigh and Professor William Ramsay presented a paper announcing the demonstration of a new substance in the atmosphere, which they term Argon.

It had previously been shown by the former gentleman that nitrogen extracted from chemical compounds was about one-half of one per cent. lighter than that obtained from the atmosphere; hence he was led to study atmospheric gases under a number of different conditions, and the above-mentioned discovery was the result.

Argon is prepared by freeing air from oxygen through the medium of red-hot copper, residue being passed from a gas-holder to a combustion tube heated in a furnace (also containing copper) in order to remove all traces of oxygen; the issuing gas is now dried by passage over soda-lime and phosphorous pentoxide, then made to enter a combustion tube packed tightly with magnesium turnings, and heated to redness in a second furnace. Ultimately the Argon is transferred to a small gas-holder and caused to circulate through a series of tubes of copper, copper oxide, soda-lime, phosphorus pentoxide, and red-hot magnesium turnings, until freed from any possible contamination with oxygen, hydrogen, hydrocarbons, or nitrogen. It is preserved over mercury or over water saturated with itself.

Notably all attempts to combine Argon with other elements have so far failed. It is suspected, however, that it is not an element, but a compound, as it partakes of the nature of a monatomic gas.—*Medical Age*.

To remove the black deposit from rubber plates that have been in long use, I take of alcohol, ammonia, and chloroform equal parts. Pour a little of the liquid onto the plate, add pumice stone, and quickly scour; then polish with oil and plaster, in the usual way.—*Dr. W. D. Tickner*.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

CRITICISM VERSUS DEEDS.

The management of the Protective Association, as well as those engaged in other reform movements, can well appreciate the feelings of a distinguished divine who said that he wished his friends would send him their flowers while he lived instead of heaping them upon his coffin when he was dead. We have wondered what it is in human nature which makes men so afraid to express any commendation or appreciation when they are pleased, but so ready with the sharp, quick word of criticism when they think they have discovered a chance to find fault. The managers of the Protective Association do not wish their flowers, however, now or hereafter, in the form of words, but in deeds and in co-operation in the mighty work undertaken. Have they not a right to ask this? Have they not a right to expect it?

When one has spent all the time which he should have given to rest and recreation for several years in unremitting toil for the accomplishment of a great and needed work, and in the belief that sooner or later he would be able to rally to his help the profession for which he labors, it does not give added zest or inspiration to the work to receive letters of which the one on page 240 is a fair sample. And yet, there is another side to the question. Letters of any description, even though they contain criticisms ten-fold more severe than those made in this letter, are preferable to the awful silence which has prevailed; for we can attribute the silence in reply to our numerous appeals for help and co-operation to but two causes—utter lack of interest, or, disapproval of our methods. Which is it? We have published the letter from Dr. Ross in full and our reply, not from any feeling of resentment whatever toward

the writer, but to call forth a general discussion of the work of the Protective Association, the Dental Supply Company and the DENTAL DIGEST. We thank our New England brother most heartily for "speaking out in meeting." He has been laboring under misapprehensions which will be removed by investigation. Let us have a full and free conference over these matters. If you approve of what has been done, say so and give us your support. If you disapprove, say so and tell us why. If there are questions upon which you wish to be enlightened ask them. One of the offices of the DIGEST will be to furnish an open field for the discussion of these and all other subjects of interest to dentists. Whom shall we hear from next?

AN EXPLANATION.

The editorial criticism in the April number of the *International Dental Journal* concerning the treatment of Dr. Truman's paper in the February number of the Dental Digest, we regard as entirely justifiable and are glad to make such reparation as is possible. We saw the proof of the article alluded to and struck out the objectionable portions, but to our surprise when the DIGEST was issued the expunged sentences had reappeared. We deprecate as such as our old and esteemed friend, Dr. Truman, possibly can, any unfair treatment of papers or the putting into the digests of papers the editor's own ideas. Our policy is to have all digests strictly impartial—to give in brief the writer's views upon the topic under discussion without comment; when editorial comment is deemed wise it will be made in the editorial columns. In the beginning we had difficulty in having this policy understood and carried out, but we are sure that if the readers will carefully note the March and April numbers of this journal, they will see that it has been strictly adhered to.

The charge of lack of moral courage in not publishing the name of the editor of the DIGEST is one of which we have never before been accused, and we believe it would not have been made now but for the counter-provocation which called it forth. We have long been of the opinion that a journal should be greater

than its editors—that it should be able to stand upon its merits and not upon the reputation of some individual as editor, for like Tennyson's brook—"men may come and men may go," but a journal should be strong enough to successfully withstand all changes. In this we are simply following a precedent already established by some of the leading magazines and journals of the country.

We regret exceedingly the article which called forth Dr. Truman's editorial and assure him and our readers that it is our intention that all papers shall receive fair and impartial treatment in the DIGEST.

THE AMERICAN DENTAL ASSOCIATION.

The Meeting of the American Dental Association takes place at Asbury Park the second Tuesday in August.

As is well known the literary work of the Association is done by the sections. These sections are:

Section 1, Prosthetic Dentistry, Metallurgy and Chemistry—R. M. Sanger, Chairman.

Section 2, Dental Education, Literature and Nomenclature—Louis Ottofy, Chairman.

Section 3, Operative Dentistry—Louis Jack, chairman.

Section 4, Histology and Microscopy—Frank Abbott, chairman.

Section 5, Materia Medica and Therapeutics—J. S. Cassidy, chairman.

Section 6, Physiology and Etiology—J. D. Patterson, chairman.

Section 7, Anatomy, Pathology, and Surgery—T. W. Brophy, chairman.

The work of the Association will be very much benefited if each society will make a condensed report of the important work that has been accomplished during the year and forward same to the chairman of the section to which it belongs. What they want is a condensed report of the literary work—that is to say, they do not wish to know how many members you have, nor who the officers are, but simply a brief report of the important work of each organization.

We publish under the head of notices a list of the questions selected by a committee by the American Dental Association, also a list of questions sent out since then by Dr. Louis Jack, chairman of section 3, on Operative Dentistry, who will be very glad to receive material for his report, and now is the time while societies are in session to select such material and forward it.

Book Reviews.

Transactions of the American Dental Association at the Thirty-third and Thirty-fourth Annual Sessions, held at Chicago, Ill., and Old Point Comfort, Va., commencing on the 12th of August, 1893, and the 7th of August, 1894.

Publication Committee: Geo. H. Cushing, E. T. Darby, A. W. Harlan.

* * *

Transactions of the Midwinter Fair Dental Congress, held in San Francisco, commencing June 11, 1894.

Editorial Committee: J. D. Hodgen, W. A. Knowles, W. Z. King.

This book contains two hundred and seventy pages, is very neatly prepared, has some illustrations and charts, and many valuable articles, of which, from time to time, we will give digests.

Notices.

NORTH DAKOTA DENTAL SOCIETY.

The thirteenth Annual Meeting of the North Dakota Dental Society will be held in Fargo, May 15-16-17, 1895. C. L. ROSE, Sec'y., Fargo, N. Dak.

NEBRASKA DENTAL SOCIETY.

The twentieth annual meeting of the Nebraska Dental Society will be held at Norfolk, May 16, 17 and 18. A good program has been prepared, and a general invitation is extended to sister states.

O. M. HUESTIS,
Cor. Sec'y., Nebraska City, Neb

THE NEW YORK COLLEGE OF DENTISTRY.

The twenty-ninth annual Commencement of the New York College of Dentistry was held in Chickering Hall, April 15, 1895. The degrees were conferred by Prof. Frank Abbott, M. D., Dean; the valedictory address was delivered by J. L. Chaim, D. D. S.; and the address to the graduates was made by G. R. Van de Water, D. D.

Students in attendance, 361; graduates, 81.

CHICAGO COLLEGE OF DENTAL SURGERY.

The thirteenth annual commencement exercises of the Chicago College of Dental Surgery were held in the Schiller Theatre, April 2, 1895. The degrees were conferred by T. W. Brophy, M. D., D. D. S.; the valedictory was delivered by C. J. Sowle; and the doctorate address made by A. H. Peck, M. D., D. D. S.

Students in attendance 300, graduates 106.

COMMENCEMENT OF VANDERBILT UNIVERSITY.

The commencement of the Dental Department of Vanderbilt University took place at the Univ. Chapel, February 28, before a full house. The charge to the class was made by W. H. Morgan, Dean; the valedictory upon the part of the class, delivered by D. S. Peach; and the degrees conferred by the Chancellor, J. H. Kirkland.

Students in attendance during the session, 136; graduated, 38.

NORTH CAROLINA DENTAL SOCIETY.

The twenty-first annual meeting of the North Carolina State Dental Society will be held in the city of Salisbury, N. C., on May 14, 15, 16, 1895.

A cordial invitation is extended to members of the profession.

The State Board of Dental Examiners will meet at the same time and place to examine all applicants for license to practice in the state.

J. E. WYCHE, Secretary.

Greensboro, N. C.

COMMENCEMENT OF OHIO COLLEGE OF DENTAL SURGERY.

The forty-ninth annual commencement of the Ohio College of Dental Surgery was held at the Odd Fellows' Temple Auditorium, Cincinnati, O., April 2, 1895. The degrees were conferred by James Leslie, D. D. S., of the Board of Trustees; the address to the graduates was made by Dr. W. O. Thompson, president of Miami University; and the class oration was delivered by C. E. Fitzpatrick, Wellston, O.

Students in attendance, 189; graduated 50.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

It is earnestly requested of the presiding officers or secretaries of the Examining Boards throughout the States and Territories that they kindly forward to the National secretary the full list of officers with their respective addresses. In view of the large meeting expected at Asbury Park this coming August, the secretary desires to give every Board due notice in ample time and likewise to obtain a corrected list of officers to date.

CHARLES A. MEEKER, D. D. S., Secretary,
29 Fulton St., Newark, N. J.

CHICAGO DENTAL SOCIETY.

At its last monthly meeting, April 2, the Chicago Dental Society elected the following officers for the ensuing year:

Dr. W. V. B. Ames, president; Dr. C. E. Bentley, 1st vice-president; Dr. J. A. Dunn, 2nd vice-president; Dr. A. H. Peck, recording secretary; Dr. H. A. Costner, corresponding secretary; Dr. E. D. Swain, treasurer; Dr. H. A. Gunther, librarian; Drs. G. H. Cushing, J. N. Crouse and J. G. Reid, board of directors; Drs. D. C. Bacon, H. W. Sale, and E. R. Carpenter, board of censors; Dr. G. B. Perry, committee on exhibits.

A. H. PECK, Recording Secretary.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK.

The 27th Annual Meeting of this Society will be held in Academy Hall, 42 N. Pearl Street, Albany, May 8, 1895.

The subject for the meeting will be "*Green-stain*," and divided as follows:

"The Etiology"—illustrated with lantern slides, etc., by Carl Theodore Gramm, M. D., Chicago, Ill.

"The Classification," W. C. Barrett, M. D., D. D. S., Buffalo, N. Y.

"The Therapeutics," S. B. Palmer, M. D. S., Syracuse, N. Y.

The Board of Censors will convene in the above hall at 9.00 A. M., Tuesday the 7th, for the examination of candidates for the degree of M. D. S.

CHARLES S. BUTLER, Secretary.

AMERICAN DENTAL ASSOCIATION QUESTIONS.

SECTION III., AMERICAN DENTAL ASSOCIATION,
1533 LOCUST ST., PHILADELPHIA, March 20, 1895.

Some weeks since, I sent to you as a member of Section III. of the American Dental Association, a request that you prepare a paper upon some subject which you may consider of interest to the profession.

I again write to you a remainder of this and of the importance of the Section making a creditable presentation of work at the next meeting in August.

Let me also suggest a careful consideration of the subjects herewith submitted, some of which are sent out by authority of the Association to be discussed by the various local Societies.

Clearly expressed views upon these questions, so discussed as to approach definiteness of conclusion, will make an advance towards the settlement upon rational and scientific grounds of these important matters.

Questions:

No. 1.—What is the surest treatment to secure root canal sterilization?

No. 2.—Which method of root canal filling furnishes the most complete obliteration of this space?

No. 3.—Is not operative dentistry liable to the same injury from the too prevalent use of plastic stoppings as occurred to prosthetic practice from the introduction of vulcanite?

No. 4.—Under what conditions should such temporary stoppings as gutta-percha and phosphate of zinc be employed, and what conditions justify the use of amalgams?

No. 5.—What procedures in implantation of teeth promise the best results?

No. 6.—What precautions are required, and what special procedures are necessary, when transplantation is practicable, where teeth are being destroyed by pyæmic conditions?

No. 7.—What is the most reliable treatment for acute sensibility of dentine?

No. 8.—When should the dental pulp be treated conservatively?

No. 9.—What precautions are required to secure the advantage of dental matrices (a) for plastics? (b) for gold?

Yours truly,

LOUIS JACK, Chairman.

THE HORACE WELLS PERMANENT MEMORIAL.

UNDER THE AUSPICES OF THE AMERICAN DENTAL ASSOCIATION.

At the celebration of the 50th Anniversary of the discovery of Anæsthesia, held in Philadelphia, December 11, 1894, a resolution was passed directing the president of the American Dental Association to appoint a committee to take into consideration the erection of a suitable permanent memorial of Horace Wells, and to secure contributions toward a fund for that purpose. It is hoped to secure enough money to erect a bronze statue of Horace Wells in the National Capital. The details as to the style and character of the statue, as well as its definite location, will be decided upon at the next meeting of the American Dental Association, to be held at Asbury Park, N. J.

The committee calls your attention to this opportunity for doing an act of justice to the memory of a worthy member of our profession, whose discovery has been of such incalculable benefit to humanity and which has been so great an honor to our profession. Contribute whatever amount of

money you may feel able and willing to donate to the fund, and use your influence toward bringing the plan to a successful issue in a manner befitting the object.

Contributions may be sent direct to the treasurer, Dr. J. D. Thomas, 912 Walnut St., Philadelphia.

Dr. J. Y. Crawford, president of the American Dental Association, has appointed a central executive committee, consisting of the following gentlemen: Dr. James Truman, Dr. Wilbur F. Litch, Dr. S. H. Guilford, Dr. E. C. Kirk, Dr. J. D. Thomas, chairman. And in connection with the foregoing, a general committee, to consist of the presidents of all the dental societies of the United States. The object of this plan of organization is to secure the co-operation of the whole dental profession of America, through the personal interest of the presiding officers of the several dental societies, towards raising the necessary funds.

In accordance with the action of the president of the American Dental Association, and by virtue of the authority vested in him by the resolution adopted at the Horace Wells memorial meeting in Philadelphia, all presidents of societies are hereby appointed members of the general committee entrusted with the collection of funds for the purpose as above set forth.

ILLINOIS STATE DENTAL SOCIETY—GALESBURG, MAY 14-17, 1895.

PROGRAMME—ESSAYISTS.

1. Address by the President, J. W. Cormany, subject, The Saving of the First Tooth.
2. Dental Science and Literature, Dr. A. W. Harlan.
3. Dental Art and Invention, Dr. J. Frank Mariner.
4. Louis Ottofy, subject, A Review of the Transaction of the Illinois State Dental Society for a Quarter of a Century. Discussion opened by Dr. A. W. Harlan.
5. C. B. Rohland, subject, A Simple Method of Keeping a Daily Record. Discussion opened by Dr. T. W. Prichett.
6. D. M. Cattell, subject, Results of Experimental Root-Canal Fillings. Discussion opened by Dr. E. K. Blair.
7. C. R. Taylor, subject, The Human Tongue. Discussion opened by Dr. Garrett Newkirk.
8. W. V. B. Ames, subject, Combinations of Metals for Amalgams. Discussion opened by Dr. E. D. Swain.
9. C. C. Southwell (Milwaukee, Wis.), subject, Compressed Air in Dentistry. Discussion opened by Dr. W. H. Taggart.
10. A. W. McCandless, subject, The Duties of Dentist to Patient; The Duties of Patient to Dentist. Discussion opened by Dr. A. H. McCandless.
11. E. H. Allen, subject, The Illinois State Dental Society and the Relation it Sustains to the Dentists of Illinois. Discussion opened by Dr. C. N. Johnson.
12. C. R. E. Koch, subject, A Commentary on the Illinois Dental Statute of 1881. Discussion opened by Dr. T. W. Brophy.

The following questions will be submitted to the Society for discussion:

1. Can alveolo-dental abscess arise after complete sterilization and obliteration of the canal by an impervious filling and if so, from what causes?

Dr. G. V. Black will open the discussion.

2. What are the best means of diagnosis of pulp-calcification in its several forms; to what extent does the process demand treatment, and how shall it be treated, (a) with respect to its prevention, (b) remedially?

Dr. E. Noyes will open the discussion.

3. What is the most satisfactory antiseptic, and best method for root canal sterilization?

Dr. J. W. Wassall, will open the discussion.

4. Is not operative dentistry liable to the same injury from the too prevalent use of plastic stoppings as occurred to prosthetic practice from the introduction of vulcanite?

The discussion will be opened by Dr. W. A. Johnston.

Clinics will be given as follows:

1. L. E. Custer, (Dayton, O.), Electrical Fusing of Porcelain.
2. W. V. B. Ames, Gold Inlay.
3. A. E. Matteson, Porcelain Crown. Exhibit Furnace.
4. S. W. Lukin, Bridge. Using Logan Crowns and Gold Crowns for Posterior Abutment.
5. T. W. Prichett, Filling. Using Amalgam.
6. J. G. Reid, Enlarging Root Canals with Sulphuric Acid.
7. I. A. Lumpkin, Gold Filling in Disto-Proximal Compound cavity of Molar or Bicuspid.
8. Josephine D. Pfeifer, Gold Crown.
9. C. C. Corbett, Regulating Teeth with the Jackson Crib.
10. H. Logan, Cast Aluminum Plate.
11. L. W. Skidmore, Gold and Tin Filling in Bicuspid.
12. A. W. Harlan, Treatment of Pyorrhea Alveolaris.
13. W. H. Taggart, Porcelain Bridge. Exhibit Electric Furnace.
14. Grafton Munroe, Management of Sodium and Potassium in Treating Putrid Pulp Canals.
15. G. E. Warren, Gold and Platinum Filling in Bicuspid or Molar.
16. W. W. Tobey, Immediate Separation and Filling of Incisor Teeth, Using Williams' Untrimmed Gold.
17. D. O. M. Le Cron, Porcelain Faced Crown, Giving in Detail the Method of Riveting the Same After the Gold Work is Finished.
18. G. H. Damron, Gold Filling. Sibley's Mat Gold.
19. C. N. Thompson, Will Make and Fit Downie Crown.
20. E. K. Blair, Root-Canal Filling.
21. F. H. McIntosh, Will Make and Fit Crown, Using the Ludwig Anchor.
22. H. R. Staley, The Use of Cements in Retaining Gold and Amalgam Fillings. Illustrated by Models.

LOUIS OTTOFY, *Secretary,*

Masonic Temple, Chicago.

A. H. PECK,

Chairman Executive Committee.

Obituary.

DR. JOHN J. R. PATRICK.

John J. R. Patrick, D. D. S., died at his home, 16 North Jackson street, Belleville, Ill., April 10, 1895. He had been sick for some time with dropsy, and his death was not unexpected.

The deceased was born in Liverpool, England, in 1828; his boyhood was passed in Ireland; and when about twenty years of age he came to America with his parents. He lived first in Iowa, then in St. Louis, where he began and completed the study of dentistry, and came to Belleville in 1859 and opened an office.

During the civil war he served as captain of Company G, 130th Illinois Regiment.

He was married twice. His first wife was a Miss Ross of Belleville, who died about five years ago; and his second, whom he married about three weeks before his death, was a Miss Anna Rischar, who had been his secretary and housekeeper.

He was successful in his business, and well and favorably known in his profession. He delivered special lectures to the students of the Missouri Dental College, the State University of Iowa, and other institutions. He was curator and a distinguished member of the U. S. Dental Association. He had a large collection of Indian relics, skulls, etc.; had contributed to the archives of the Smithsonian Institute; and was known outside the profession from his work on prehistoric crania, and the exploration of Indian mounds.

He was a member of Hecker Post, No. 443, G. A. R., and was buried under the auspices of that organization. His funeral was attended by several members of the dental profession from St. Louis and other places, and the community of Belleville were in attendance in numbers to testify to the love in which he was held.

News Summary.

For rent.—Dr. Cattell wants to rent a good operating room off from his reception room with privilege of same. \$25.00 per month. 34 Monroe St.

Treatment of Leucomata of the Mouth.—Rosenberg refers to a case, which had resisted treatment for seven years, yielding to a few applications of a twenty per-cent. solution iodide of potash.—*Therap. Mon.*

A correction.—In the March DIGEST in a little item quoted from the Christian Register and entitled "Military Duty and the Professions," the statement was made concerning clergymen that 954 out of a thousand were unfit for military duty. It should have been 664.

Dr. K. L. Cleaves of Montpelier, Vt., relates a curious case which came under his notice. Upon a lady remarking that she must get herself a new set of teeth, her aunt offered her a celluloid plate in jest. The lady put it in her mouth and wore it for eight years, and when she came to Dr. Cleaves for a new plate, the suction was as good as the average, and the only reason she got a new plate was on account of her daughter's wedding.

A Sign of Hereditary Syphilis.—At the French Congress of Dermatology and Syphilography, M. Jullien mentioned a malformation of the jaws which seemed to him to be characteristic of hereditary syphilis. It consists in the projection of the upper jaw beyond the lower, either all around or only in front. He has observed this ten times; in nine cases it was connected with manifestly hereditary syphilis; the tenth case was simply suspicious.—*Revue Int. de Med. et Chir.*

Definition of a Blush.—A Cincinnati physician gives the following scientific definition: "A blush is a temporary erythema and calorific effulgence of the physiognomy, etiologized by the perceptiveness of the sensorium when in a predicament of unequilibrium from a sense of shame, anger or other cause, eventuating in a paresis of the vaso-motor filaments of the facial capillaries, whereby, being divested of their elasticity, they are suffused with a radiance emanating from an intimidated præcordia."

Toothache.—R. Dry Alcoholic Ext. Opium 8 grains.
 Camphor..... 8 grains.
 Balsam Peru 16 grains.
 Mastic 16 grains.
 Chloroform. 2½ drachms.

Introduced into the cavity, it calms the pain at once.—*Four. de Pharm.*

Cologne Tippling.—According to *L'Union Medicale* this habit is increasing. Alcoholics, especially women, begin by taking a few drops of *eau de cologne*, and finally drink it by the glass. The writer seems to think this form of alcoholism may replace or cure the cocaine and morphine habits. The habit is exceedingly injurious, for in addition to the poorly rectified alcohols are the natural or artificial essential oils which are equally toxic. The practice is found among the upper classes principally.

Napoleon is being discussed and dissected from every standpoint, and why not from a dental standpoint? This is the description of his dental toilet given by a recent exhaustive and reliable biographer: "Having washed his face and hands, he picked his teeth very carefully with a boxwood toothpick, and then brushed them for some time with a brush dipped in opiate; went over them again with fine tooth powder, and rinsed his mouth with a mixture of brandy and fresh water. Lastly, he scraped his tongue with a scraper of silver, of silver-gilt, or of tortoise shell. It was to these minute precautions that he attributed that perfect preservation of all his teeth, which were beautiful, strong and regular. During the whole of his reign he never appears to have had recourse, except for scaling, to Dubois, his surgeon-dentist, borne on the list for 6,000 francs, and the recipient of a gold traveling case, the instruments in which were for the exclusive use of the Emperor."

The Dental Digest.

Vol. I.

CHICAGO, MAY, 1895.

No. 5.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

BY J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 197, No. 4, Vol. 1.]

In our last article we discussed at some length compensation in dentistry and methods of dealing with patients in different financial conditions; how to render good services at less expense to those who cannot pay for the services of a dentist of established reputation; and how, at the same time, to add to the income of the dentist.

This we suggested could be accomplished by the employment of assistants; one or more who can operate well, but who perhaps lack the experience requisite to diagnose correctly. These assistants under the guidance of a skillful dentist, will render far better services than the cheap John dentist to whom many of our most intelligent and desirable patients are driven solely on account of expense; and if the business is properly managed it can be made profitable and still the charges be brought within the means of the patient.

A busy dentist can also economize his own time still further by giving much of the detail work, which too many dentists do themselves, in charge of the assistant at the chair; for instance, keeping an account of the time given, diagraming the work performed at each operation, making a record of the same, also of the dictated remarks in regard to the work, the materials used, the roots filled, the capping of pulps and their condition when capped, the alveolar abscesses treated, how and when, the treatments of pyorrhea, what used and which part of denture taken care of

at each particular sitting. In this way a record of everything that may be of advantage in the future can be kept, and will be found invaluable.

But all this is very fatiguing if the busy man of practice does it himself, and it will be more sure of accomplishment and much better done if we have a trained and careful secretary to whom we can entrust all this recording of service, etc. Such an assistant can soon be trained to do the work satisfactorily with such dictation as may be necessary to enable us to know at any time what has been done. This lady assistant should always record the time given to each sitting, and with the records thus taken all we need to do before rendering a bill is to decide what shall be the charge. This we believe can best be decided by a record of the time consumed, charging by the hour being the most accurate method. We will modify this by the further proposition that some operations, and the services rendered some patients, should command a higher fee than others, independent of the question of financial ability; owing to the fact that difficult operations as well as very nervous and ungovernable patients exhaust our energies more than others; and the compensation should be in accordance with these conditions, but the only sure and ready way to estimate the charge is by the hour.

The plan of charging by the filling is open to many objections—let us illustrate. If the bill is to be rendered as giving the number of fillings, the temptation is to have the number as large as possible, and this is often the reason why divisions between cavities that should have been removed are allowed to remain. The bill will look better showing ten gold fillings than if it shows five, which it would have if the weak divisions between two or more fillings in the same tooth had been removed; requiring perhaps a little more time, but giving a more permanent operation. But the bill of items showing ten gold fillings is more likely to meet with a favorable acceptance than one of the same case where the fillings have been reduced to five by doing away with the weak walls.

To a practitioner of any experience this one illustration will suffice for many which could be given to show that the method of charging by fillings is very objectionable. The writer could describe many such cases, but one comes to mind that occurred dur-

ing our early practice. We were consulted in regard to certain work and when asked to give our price, we named \$20 for one particular tooth, a lower first molar. The husband and wife left our office and called upon a neighboring dentist who gave them the information that he seldom charged more than \$10, his prices ranging from \$5 upwards, etc. The work was performed by this dentist and the bill rendered with the fillings diagramed and the charges itemized, but the tooth which should have been filled with one large gold filling, as we had planned, had five separate gold fillings. These same patients returned to consult with us a year afterwards and brought with them the itemized bill which had been paid upon presentation, and which was rendered for \$25 for the five gold fillings in this same first molar. The divisions left had in the meantime broken away and the tooth required re-filling.

A little reflection will show that an honest practitioner places himself at a disadvantage or in competition with dishonest methods if he charges according to the number of fillings. Besides, a professional man charges for his services, and many times they are given for other duties than filling: viz, for removing cavities, studying out a plan in the first sittings of how the work shall be performed, instructing in the care of teeth, etc.; all of which are fully as important services and of quite as much value to the patient, so the only way to get a correct estimate of the work is by knowing the actual time given to it.

With all the precautions heretofore spoken of in regard to informing the patient of what the bill for services will be, there will frequently be misunderstandings and disputes; especially is this true with young practitioners who have not an established practice. It is often difficult to make those requiring our services understand that of necessity good service takes time, ability, an immense amount of energy, and a skilled experience, all of which in justice should be well paid for. Some of the arguments in favor of good compensation to a dentist are, that it takes a man of ability to make a good dentist, and quite as much ability as is needed in any profession; a dentist's education is expensive, and from eight to ten years are necessary to learn how to conduct a practice; the business is an unhealthy one and the lifetime of the business of a dentist, or the time in which he can make money, is much

shorter on the average than that of any other profession or occupation; therefore, during this time his compensation should be greater; finally, his expenses are very high in proportion to his income.

An important item in this connection is to make sure that when further services are needed you will be the first choice; and what will strengthen your position and make it much easier to get good compensation and a ready response when you render a bill, is to make sure that you have rendered such service and made so favorable an impression that your patients feel confident no one else could do better. How can this be brought about? Let us see.

Have you always gone to your chair or to the work on hand in the best possible physical condition? Have you avoided dissipation and excesses and had your full sleep, so that with a clear head you could think and reason correctly, carrying out well-laid plans with skill and dexterity? Have you always been able to approach timid, shrinking, nervous persons with a degree of delicacy and real kindness that would to a great extent allay many of the misgivings in their mind, treating them in the very beginning as if they were living beings worthy of the most kindly care? Have you made the most careful examination and correct diagnosis, so that one line of procedure is not interfered with by the next? If contouring is the best for a case have you so decided this often difficult question before you made objectionable separations? Have you remembered that not only should the caries be stopped, but the masticating surface left so that the food can be chewed without discomfort when you have completed your service? When getting access to obscure and difficult cavities have you done so in the way best for the patient? Have you always used every precaution consistent with good sense to make the suffering as light as possible, using every possible treatment to lessen the torture? Have you always selected the best material for each given case when filling, or in case of the substitution of lost teeth are your substitutes skillfully and artistically made? When all is completed can you examine the operations and be sure that every part of your service is as perfect as it can be made, and made with the least possible discomfort to those you have served? If all these things are so, you have a right to full compensation. The

recipients of such service should be glad to recompense you two-fold, and if at all appreciative, will do all they can to repay the extreme exertion such service as here enumerated demands. For the dentist who has given such service must have given the very best efforts that he could exert, and he is sure to command in a short time a class of patients who will appreciate to the full extent the merits of such valuable service as described above.

The performing of these varied duties and plans of operating more in detail must be left for future articles.

(TO BE CONTINUED.)

DO WE WANT TO BE CLASSED AS A TRUE PROFESSION?

By J. E. DAVIS, B. S., D. D. S., COLUMBUS, O.

If we do, then we must stop making false teeth. Do we expect a surgeon to make a wooden or cork leg just because he cut off the natural one, or the eye and ear specialist to make a glass eye or ear trumpet because he has treated those members? An intelligent shoemaker will expound just as eloquently upon the scientific way in which a pair of shoes should be made as a dentist will upon the making of a set of false teeth. An intelligent mechanic will learn to make a set of teeth as quickly as he will a pair of shoes, an artificial leg, a wig, a pair of gloves or a coat. One must look well and fit well as much as the other. Making a set of false teeth no more belongs to a profession than does any of these other things named, and so long as dentists hang on to the tail of both a trade and a profession, they will never have the true dignity of the latter.

Teach people that the dental profession is for saving their natural teeth, even to crowning and attaching bridge teeth. When the shopper comes in and asks, "What do you charge for a pair of teeth?" You should be able to say, "I don't make 'false teeth,' but over yonder, right between that shoe shop and tailor shop, you will find a 'false tooth' shop, where you can get a pair for five or six dollars, and the man is evidently making almost as much money as the shoemaker or the tailor." A professional dentist should extract the old teeth, which surgical operation should cost a reasonable but just fee. A feeling of pity

comes over us when we see a poor mortal trying to manage a cork leg, a false arm or a wig. And the same feeling is growing upon us when we see false teeth. It used to be that the few who could afford them were really proud of them and ready to show them to curious friends, but now we often hear the expression, "Oh, those horrid false teeth; poor thing, if I were she, I would never laugh."

I do not believe there is a constitutional law in existence which will prevent *any one* who wishes to make artificial teeth, from working at it as a trade, providing he confines himself strictly to that kind of work. There is no jeopardizing life or health in making false teeth which can be removed or thrown away at pleasure. We see now that the better class of people are willing to do almost anything and pay a good price rather than wear artificial teeth. This feeling should be encouraged by the dental profession separating themselves from the false tooth shops at once and forever. It should not be taught in our colleges; there is enough of the work to tax the skill of the average student. Young men should serve an ordinary apprenticeship in a shop and learn the trade of making artificial teeth, for trade it is. There ought to be shops in cities and large towns where the best gold or continuous gum teeth could be had, and those able to afford them could if necessary, make a short journey to get them, while a common set on rubber should be had in any town.

As a profession we will lose nothing by dropping this trade part of our business, but we have everything to gain. We will get almost as much for extracting a mouthful of bad teeth as we do now for both extracting and making a set of teeth, as people would do more to avoid wearing them. We will be a true profession, true doctors of dental surgery, and not a cross between a trade and a profession, without recognition by either. Another great advantage to us as a profession would be that scores of incompetent operators could not pay their office and advertising expenses by making cheap teeth, while they botch up all the natural teeth they can get hold of between times.

A dentist would have to know how to *save* teeth or he could not gain a foothold in the profession. Our patients would know that it does pay to have teeth filled, and we would then be truly recognized as an exalted profession, entitled to the degree of Doctor of Dental Surgery or Doctor of Medical Dentistry.

A DIGEST.

BY CARL FISCHER, D. D. S., ZANESVILLE, O.

In following dental literature the *pro* and *con* arguments about subjects of vital interest to dentists make it sometimes difficult to arrive at a definite conclusion. Following the teachings of authority blindly is not altogether satisfactory to the intelligent dentist, and experiments should always go hand in hand, to establish the truth of an investigation in one's own mind. When sulphuric acid came to the front as an aid to enlarge root-canals, I made solutions from 30 to 50 per cent. of strength and found their action on tooth structure very slow. Calcium phosphate is scarcely attacked by the cold acid and of calcium carbonate we have very little. The acid to dissolve a tooth is nitric acid (of course to be used with judgment). The best way to use it is probably to add to a 50 per cent. solution of sulphuric acid enough to increase action, say 10 per cent. Dilute nitric acid will dissolve steel, while concentrated will not, therefore a steel broach cannot be used. The action of nitric acid varies with the concentration, 3 drops in water is recommended for stomatitis (Hare), while the concentrated form is a powerful escharotic. Where cauterization of the apical space is desirable, surely no objection can be brought forward. Dr. Barrett uses the strong acid in case of necrosis. To stop the action of nitric acid on tissue, soap is the best agent to employ. (Soap can best be dissolved in dilute alcohol.)

Have you used Iodine and Cassia? (Dental Digest No. 2.) Does this mean alone or combined? or for what purpose? or is it a specific? Well both are irritants in a root-canal as far as my observations go, and help to break down tissue.

In reading Dr. Duddy's article on "Titles," no one can but feel the truth expressed in this timely article. I think with Dr. Mears (and if any one knows, he does) that a good dental college furnishes all the mental food necessary to become an excellent dentist. To do justice to both studies in four years means a fine education beforehand.

Ethics now and then has an airing in the dental journals, but it does not influence anybody in the slightest degree. Following the modern principles, honor becomes a back number. Not

mentioning the common everyday advertising dentist, but turning our attention to the college professor, we find a special code of ethics for him. He does not think anything of blowing his horn till everyone becomes nauseated. So that his greatness may not be overlooked he never fails to mention that Dr. Miller shook hands with him or stopped at his house, etc. I know most graduates are not capable of separating the college from the profession, and the bitter feeling and knowledge of being used to enrich the college stays with them when they start in practice.

Coagulation of the albumen in the tooth has furnished a favorite topic for some time. Having practiced chemistry for many years, naturally I use my chemical eye to view such matters. In considering the discoloration of a tooth by an amalgam filling containing copper, we are told that in proportion as it discolors it saves a tooth. Why? I never saw it stated. It is due, not exactly to coagulation, but to the formation of copper albuminate, (which is now an article of commerce), analogous to the conversion of hide into leather through tannic acid. May not a dilute solution of a zinc-salt do the same thing? I don't know but zinc is an element which forms many combinations with other bodies. In speaking of the comparative penetrating power of chemical agents through albumen, one thing is not to be lost sight of, namely a glass tubule is not a dental tubule. The first is not effected by chemical agents, the latter is. Lime and magnesia neutralize carbolic acid, and zinc chloride is precipitated by alkalies.

PROGRESSIVE DENTISTRY, THE RESULT OF UNIVERSAL EDUCATION.

BY J. C. TOWNSEND, D. D. S., COLORADO SPRINGS, COL.

We would beseech you to read, mark and inwardly digest this parody, which should be the voice of every dentist, as the time has come when dentistry must assume a new phase, and we believe that a regular and systematic method of education for both operator and patient should be established.

Progress in any and every form of education and enterprise is the result of reinforcing precept with experience. Education is the road by which we climb the steep and rugged heights of any

business pursuit. It is not only the medium by which we struggle for daily bread, but the source of all light, liberty, love and everlasting happiness. Our profession as a whole, should be one great and grand school which we enter when we matriculate with our Alma Mater, and which we should not be compelled to forsake, until kindly Death dismisses us from our earthly playground. Progress is fostered by the momentum of fever and passion of ambition, by the glory of attainment, the mortification of defeat, the attrition of man with man in association and co-operation. Life is thus valuable as progress accompanies our efforts. Wisdom is often gained from failure, sympathy with others, from anguish suffered by ourselves; strength from conquest; courage in adversity; because we see how little fate can really harm us; humility in prosperity, because we learn how accidental and superficial prosperity really is; charity, because we find with what slow progress the greatness and littleness of humanity is distributed; kindness, because the fire we kindle on our brother's hearth-stone warms and radiates our own thoughts, and often submerges our failures into success.

We progress generally by the sweat of our brow, perseverance and union of heart; it is no spontaneous blossom, or flowery beds of ease, but reminds us of the breeze that blows through the garden, catching the odors, delightful or repulsive, according to the flowers therein; so out of our lives, and into the viewless world beyond, we carry nothing but results. Thus our real selves or our talents are the resultants of many diverse forces; and the object of a well-defined specified education is to marshal these forces so as to produce strength, beauty and wealth out of seeming weakness and discord. In this broad sense, our relentless zeal for the greatest success and progress is necessarily co-extensive with our lives. Our progress, however, is limited, without unison of accord, and of course, is optional. But we should aim at a certain definite mark, and its merit is in direct ratio to the value we place on our talents.

In this world every man that is worth his salt must be a worker and a fighter of some sort; and carefully selected knowledge, well-earned and learned, is the Vulcan that forges our instruments, sharpens our tools, compounds our medicine, and prescribes all means for a cure.

Well-tempered must be the steel and keen the blade, for in the battle of life, each man has only what he can seize and hold against unrelenting competition. The brain that thinks and weighs, the eye that questions and discovers, the ear that listens and hears echoes of voices inaudible to disinterested ones, the keen intellect that keeps step with the march of sages, philosophers and writers of every age and nation, yields a heart not only brave, but full of sympathy for our greatest advancement and success; practically, financially and spiritually.

The characteristics of our nature must be at least three-fold; the fundamental principles of which are useful, ornamental and elevating.

While recognizing the wide province of a thorough dental education, it is illogical for practical purposes to draw a distinction between the young professional man or his elder changing his location of city or state; as it is necessary for us all to be always fully equipped; but the general principles of honor, truthfulness, justice, charity, courtesy, public spirit, and due regard for the rights of others, should prevail and be urged by every man worthy of his calling.

We have specialized our work, and it is theoretical, as well as practical, and the underlying principles are illustrated by application.

We are glad to know that our colleges are striving, as well as individual benefactors, to train or teach us how to do, not simply how to know. With a specially adapted course of study, and a thorough, competent instructor and examiner, the object is near and clear, and methods direct and effective. Dentists are biased in favor of the tracks trodden by themselves during previous years. The so-called dentists of all professional people are under the greatest temptations to fall into ruts, and to regard with suspicion unfamiliar plans or methods.

We think that new advantages can be gained only by sacrificing older ones, and it is no easy thing to strike a judicial balance between the problematic ounces of profit in one scale and the certain and tried ounces in the other, especially with such staunch conservatives as we try to be.

Besides, empiricism and quackery are as common in our profession as in medicine, and many of the so-called reforms are

half-truths, and half-truths are proverbially more misleading than falsehoods. Experiment shows that lectures and demonstrations are not only beneficial and elevating, but entertaining and healthful on whatever subject, provided it is delivered to seekers of knowledge.

As a profession, we have made great progress in many ways, and yet much, however, remains to be done; and at best we are only standing or encamped on Pisgah, overlooking the land flowing with milk and honey; and yet to advance too fast is more disastrous than to stand still. Yet, if hurry is ruin, rest is stagnation. The great problem of bringing us into more immediate relations with things themselves rather than with this absurd method of written examinations, and the perusal of long articles about the unique devices produced by the ingenious mind and charitable disposition, seems to admit of but one solution.

An ideal is never so real or substantial as a thing. So far as possible the hand should touch, the ears hear, the eyes witness, the feet traverse, that which the brain is desired to know. So we may realize what we conceived. Our minds are crammed with facts and theories, more or less distorted and ill-understood; and useless, because unapplied, and unrelated to the real experiences of life.

The public should think we have real enthusiasm for learning, and not place us far below the best physician; and, in fact, not below any other profession as to science in our calling; but we believe, while the public is not enlightened, that there is no use of our resting under such condemnation, as all our faculties are as hungrily throwing out their tentacula, for the greatest good and success of our life, as any other profession or people, and our so-called selfishness for gain could be modified by union of thought and action.

Now, the question arises, what should every dentist know; and how can state legislation benefit his life and practice and raise dentistry to a higher plane?

Just what a good dentist in general practice should know is an exceedingly difficult question, but we desire to call your attention to the fact, and ask a little of your consideration, if you are public-spirited and desire to make the most of life. Of course, we should have a good academic education, should be known to

have a good moral character, and a diploma from some one of the many reputable dental colleges in this or some other country; should write a thesis on some subject pertaining to dentistry once a year, and deliver the same to the state superintendent, and such thesis should be published in a dental journal or in pamphlet form for general distribution and information.

Of course, the chief aim in every man's life is self-support. And closely following comes the desire and natural inclination for the support of others. But equally as important, should we be true not only to ourselves, but to those with whom we deal, and are called upon to serve; and last, but not least, comes the desire for fame, and doing good unto our fellowmen. These four elements of a successful and honorable business man, of whatever calling, constitute the foundation for a good dentist.

Now, let us look at the different operations a good dentist is compelled to do in general practice. The first important duty is to make a proper diagnosis of the conditions, not only of the teeth, but of the mouth generally; also of the constitution and financial standing, if possible. Seldom do we spend enough time on these conditions. But the proper diagnosis is the forerunner to success, and he who has the power to arrive at such conclusions first, or with the most dispatch, gets the most out of our profession, or any other.

Then comes the adjusting of temperaments, adapting of circumstances, and ability to use the means at hand to remove the cause of all trouble arising from the teeth. Suffice it to say, that a first-class dentist is called upon to serve in the capacity of a Judge, Physician, Surgeon, Artist, Mechanic, Teacher and Socialist; have a gentle touch and manner, and be exceedingly kind and patient under all circumstances.

And he is expected to know the general principles of Anatomy, Physiology, Pathology, Chemistry, Materia medica, Theapeutics, Metallurgy, and at the same time be a fine operator and expert at all mechanism pertaining to dentistry. He should know the science and practice thoroughly, not only when he graduates, or comes up before the state board, but all the time, so long as he continues to practice, whether seeking a livelihood or fame, to say nothing of his office.

But we are not all constituted alike, nor have we the same

talents, even when called to the profession of dentistry. And here arises the question, should every dentist be up on all kinds of mechanism and medical treatment, in order to practice at all? And should one examination, provided we remain in the same state, suffice without ever raising a voice anywhere again to show that we are alive and doing all in our power, not only to serve the public well, but also to elevate our profession?

Where and how can we best show our honest intentions to elevate ourselves and brother practitioner? We would say, first, by contributing liberally of our income to the support of general education, sustained by a good superintendent; then, through the general association of all practitioners, coming together at least once a year, and not only reading and listening until we become regular drones, but doers as well.

Now, every one can and should contribute something of advantage to the profession once a year at least, and not only in a pecuniary way, but with the use of his best intellect. What faithful workers we are, so far as it is absolutely necessary, but naturally dilatory when there appears no necessity; but every good thinking and conscientious man must admit that all that pertains to the general advancement of our profession is a healthy factor in our lives. If so, let us join heart and hand to bring this about, and there will be enough work for all, and to spare.

The question now arises, how can we get the greatest good and sustain the highest standing for our profession? It seems to us that could be accomplished through a State Superintendent, elected by our State Society, approved by the Governor, and given power of attorney, through the Legislature. Now, such a superintendent should act as examiner and instructor for every dentist in the state, and visit every town where there is a dentist, and devote one day every six months with each dentist, and give several public clinics and lectures for the dentists and public, in all improved methods of practice.

Such a superintendent should be thoroughly up on all branches and an ideal man for the profession. His remuneration should be provided for by an assessment of a certain percentage of the professional income of each dentist, in the state or district over which he has the supervision.

We want to say just here that we think our public school sys-

tems set us an excellent example, inasmuch as their teachers have an examination from a state superintendent every year, in order to sustain their progress.

We must devote more time to study and research, have our monthly associations, wherever there happens to be a half-dozen dentists in the same town or city; let each member write a thesis on some subject once at least during the year, and in reality, take greater pride in our profession, and the public will take greater pride in us, and will reward us accordingly.

The results obtained by having such a superintendent would be that of knowing and practicing the best known principles pertaining to dentistry, without experimenting so much and so long, and to a greatly increased confidence on the part of the public, when made aware of such proceeding, and naturally more attention and work for the same; also a greater remuneration for our work, as well as increase of business. So, let our motto be, "The greatest means for the greatest good."

Now, we must advance by or through some means at once, and all the time. Let us get down to the foundation, and to solid facts, concerning our future prosperity, and act on the same at once. Let us get at something on the line of universal progress, and the Great Ruler of all good works will help us and give us the increase.

Now, a man entering our profession should just as well be compelled to keep up his knowledge of essential things pertaining to dentistry and add thereto, as to be compelled to have in store an abundance when he starts. So let us contribute freely and justly to the support of our best advancement.

A state superintendent should issue a report and give all the information that exists, not only from our state practitioners, but all over the world, and request that each dentist use and try the best methods of operation, and report the results at least every three months. The superintendent should not only enlighten his brother practitioner, but the public as well, and urge regular and thorough attention of the people to their teeth. In other words he should stir up business and blow the dentist's horn. He could control indolent and worthless practitioners by a public announcement of such in his report to the people of the vicinity in which the intruder lives.

In conclusion, we would say, that everything and everybody needs nurture, and dentists especially need association, which should be of the best.

Permit us to say that we think the necessary information of all branches pertaining to dentistry should be marked or compiled in book form by a national board of dental education, and a supplement added from time to time. Now this means that every dentist who has the greatest pride and success of his profession at heart, should be able to learn quickly and thoroughly all the necessary knowledge, and have the same at any time.

We should all be standing on the same level, so far as our knowledge is concerned, and have a definite charge, which should be by the hour. If this meets with your approval, we would be glad to have your endorsement of the principles herein set forth, and as soon as possible; as this will be much to our credit as a progressive and public-spirited people.

Treatment of Chloroform Asphyxia.—At a recent seance of the Paris Academy of Medicine, reported in the "Bulletin of the Academy," Labbe said that in apparent death from chloroform, he was firmly convinced that artificial respiration should be persevered in for a long time, and instanced many cases in support of this advice, particularly one in which he had kept up artificial respiration for twenty-seven minutes and was finally rewarded with a remarkable success. Lately, however, he had used rhythmical traction of the tongue, suggested by M. Laborde, in the case of a child who, soon after beginning the chloroform exhalation, became asphyxiated. Death seemed absolute, the pupils were dilated to the utmost. As soon, however, as he began the rhythmical traction of the tongue, the patient returned to life with marvelous rapidity; it was a genuine resurrection. He believes this method is preferable to artificial respiration, as it is easier and much quicker. Professor Verneuil said that for some time he had used only lingual traction alternating with flagellation of the epigastrium with a wet towel.—*Med. Review*.

Sterilization of Surgical Knives and Instruments.—Ihle states that they can be rendered antiseptic by boiling in one per cent. soda solution, without affecting the sharpness of the edge. As soda crystals contain 75 per cent. of water of crystallization, it is necessary to use at least three tablespoonfuls to the half litre of water.—*Archiv. f. Klin. Chirurg.*, 484, Berlin, '94.

Digests.

Items of Interest for March, 1895.

"Unprofessional Prosthetics," by Dr. G. N. Johnson, Concord, N. H. The writer says there is no branch of dentistry which requires more skill and judgment, or more varied and extensive scientific information than that relating to rubber plates. While some practitioners have advanced along this line, the majority are practically standing still; consequently there is a great deal of "rubber disease" and kindred ills. The semiology and syndrome of this "disease" is given as follows: "A low order of vitality in the parts covered by the plates and its peculiar pallor; irritation, swelling, redness, inflammation, congested, engorged, hyperemic condition; granulation, granulated masses like a strawberry, red, purple, scarlet, soft and spongy; half the arch filled with a spongy mass; blood oozing from the diseased parts; turgidity of the vessels; roof of the mouth like half decayed raw beef cut across the grain; suppurating, discharging condition, ulceration; pus exuding from the folds; sanguino-purulent fluid constantly exuding from the apertures in the palate over the necrosed bone; sensitiveness so obtunded that no pain is felt, or in other cases, a burning, drawing feverish sensation; lines of inflammation extending to the throat, causing disagreeable tickling sensation, and annoying cough; bronchial affections, chronic catarrh; sloughing of the soft parts; in some cases death." If most plates were examined, they would be found to reproduce every imperfection and air bubble of the plaster. The air-chamber with a suction-ridge around it usually serves to increase the thickness of the plate, and to make enunciation still more difficult. And the worst feature of all is the careful preservation of the impress of the palatal rugæ, presenting to this delicate and sensitive part of the mouth a jagged and unyielding surface. Furthermore, if the dentist arranges the teeth so that all pressure of mastication falls on the anterior portion of the jaw, or so adjusts them that they articulate on inclined planes, and at every occlusion the plate rocks and partially rotates, the mouth is lacerated until a severe case of "rubber disease" is developed.

The following suggestions for the treatment and prevention of the trouble are given: 1st. Vulcanize the rubber plate between metallic surfaces, and give to it the same smooth, continuous, polished surface and rounded margins as to a gold plate. 2nd. Adjust the teeth to articulate on surfaces parallel with the line of occlusion, and thus avoid clatter and twist and tilting of the plate. More dentures are failures from faulty articulation than from any other cause.

"There are still some dentists of high degree who believe that mercurial poisoning results from the wearing of red rubber. And some of the sad cases they report do seem a trifle ludicrous—the unfortunate lady from Kansas suffering eleven long years from chronic diarrhea, nor could be healed of any, occasioned by the wearing of a common rubber plate, and the consequent absorption of mercury! A brief calculation of the largest possible daily dose during that eleven years, even supposing the rubber to be soluble at all, seems to establish the fact that red rubber is a cathartic beside which Ayer's pills fade into insignificance."

"Grip Lesions in the Oral Cavity," by C. P. Bates. The writer tells of a number of cases which came under his notice with the following symptoms: Acute inflammation of the gums and mucous membrane of the entire mouth, together with looseness and great irritation of the teeth. The lesion always developed suddenly, the patient frequently awakening in the night with severe necrosis of the teeth and jaws, and in a few hours the gums and surrounding tissues were acutely inflamed, while the pain in the teeth was intermittent. In spite of treatment with mild stimulants which always afforded some relief, the affection would run its course, usually culminating in two or three days, and then gradually decreasing in severity for about a week, when the teeth and gums would have regained their normal condition. There were no local irritants present, but in every case the patient was convalescing from a severe attack of the grip, so the writer was convinced that it was simply another form of functional disturbance, caused by that disease. The conclusions arrived at, are, that while all pronounced attacks of la grippe are not followed by tooth and gum trouble, there are many instances where the sudden development in the oral cavity of the conditions just described are directly traceable to the after-effects of the malady,

just as functional disturbances of the heart, liver, kidneys, and other vital organs are known to follow an invasion of the grip microbe. It is also apparent that these conditions seldom obtain in the young and robust patients, but with those who have passed the meridian of life, and more especially where there has been a repetition of the grip attack. In some cases the foregoing conditions have presented themselves, run their course, and entirely subsided, only to be followed by the same development of oral distress on a recurrence of grip trouble.

The Dental Headlight, April-June, 1895.

"Some Thoughts Touching Excess of Mineral or Calcareous Matter in the System," by J. C. Storey, M. D., D. D. S., Dallas, Tex.; read before the Nashville Academy of Medicine. The writer says that in all limestone regions, lime pervades every source of food supply, the air, and especially the water. Add to this soda in some of its forms, which enters so largely into the various food preparations, with magnesia so often found in the drinking water, and then add the not only useless, but harmful, salts of aluminum frequently found in bread, and there is sufficient source for any amount of these deposits. These mineral substances, taken into the system in excess of the demand after the body is mature, constitute the tartar which is deposited about the necks of the teeth, besides other stony formations. This tartar causes more loss of the teeth than all other sources combined, besides causing other diseases poisoning the blood with the pus generated about the necks of the teeth by this irritant. Perhaps the excess of earthy or mineral substances in the system is the cause of many fatal maladies, notably fatal albuminuria or so-called Bright's disease. This is a disease arising from excessive nutrition, especially noticeable in the pregnant woman. She, however, enjoys immunity from the disease because of the great demand for bone-making material at this time. But where the excess of albumin is cast out by the system, in its passage through the kidneys it may be coagulated in the tubules, form the little casts, and all the pathognomonic signs of Bright's disease. These coagula furnish a nucleus for various earthy deposits, forming little rough stones, which set up ulcerative inflammation, destroy the kidney structure, and de-

velop true Bright's disease. A large deposit of tartar about the teeth usually accompanies this malady, and [the most efficacious remedies are pure water or that which contains some acid, but no salts of lime, soda, etc., and a diet also free from these salts. To guard against the disease, one should live on a more purely fruit and vegetable diet, eschewing salt meats, soda biscuits, alum-made baker's bread, and especially water which contains lime or magnesia.

"Treatment of Decay of Deciduous Teeth," by L. G. Noel, M. D., D. D. S., Nashville, Tenn.; read before the Nashville Academy of Medicine. The writer says that this method is a new idea to him and that time alone can prove its value. He suggests the free separation of the temporary molars as soon as it becomes evident that they are decayed, with knife-shaped corundum disks, making a decided V-shaped opening that cannot fully close. Where the sixth year molars are in place and there is decay on the distal surfaces of the second deciduous molar, use safe-sided files of the ancient style, and carefully avoid cutting the enamel of the permanent teeth. After making free separations, treat freely with silver nitrate, and have patient return for treatment until a thorough blackening and ebonation of the dentine is obtained. Where the decay is extensive, nearly reaching the pulp and too deep for the file or disk to entirely remove it, scrape away the softest portions with spoon-shaped excavators, having first thoroughly blackened and sterilized the cavity with the silver nitrate and giving time for structural changes to take place underneath, repeating the cauterization until a smooth, hard, tough, possibly somewhat concaved surface is obtained. All grinding surface cavities should be thoroughly cauterized before fillings are put into deciduous teeth.

The Dental Register for April, 1895.

"The Hypodermic Use of Cocaine," by H. B. Hinman, W. of M. The writer says that when the drug first came into prominence as a local anæsthetic, it was frequently used in a 20-per cent solution; but now better results, with much less danger, are obtained by the use of a 2-per-cent solution. Cocaine forms the basis of most of the local anæsthetics used today.

Dr. Hoff's formula for the hypodermic use of cocaine is given:

R. Cocaine Hydrochlorate.....	½ grain.
Morphine Sulphate.....	¼ grain.
Atrophine Sulphate.....	1-100 grain.
Distilled water.....	25 M.

In this there is a full dose of a two-per-cent solution, the morphine acts as a corrective to the cocaine, and the atrophine serves as a corrective to both. Cocaine preparations should be renewed at least every three days, for if kept longer, the mould which forms will cause sloughing of the gums. Great care should be used in administering the drug to weak or nervous persons, and to those having heart or lung trouble. A patient bears the administration much better early in the day, and after a hearty meal. The toxic effects are shown by an embarrassment of the respiration and circulation, as the former becomes slow and shallow, and the pulse small, rapid and intermittent. The proper antidotes, which should always be at hand, are: ammonia and nitrate of amyl given by inhalation to stimulate the respiration and the heart; opium and chloral; and in extreme cases a hypodermic injection of aromatic ammonia or sulphate of strychnia, together with artificial respiration. When a patient is nervous, a little brandy or ten to fifteen drops of aromatic spirits of ammonia in water should be administered before the operation, thus allaying the nervousness and insuring a strong, steady pulse. The syringe should be easy of manipulation and readily sterilized; and as the needle points are usually too sharp, they can be rounded off on an oilstone. Insert the needle a short distance from the neck of the tooth, and press slowly toward the apex of the root. After passing a short distance into the tissues, slowly inject a drop or two of the solution, then press forward a short distance and inject a little more. Dense tissues take up less of the solution and require less for anæsthetization than when they are more loosely arranged. Do not withdraw the needle for a minute, and then press the finger over the puncture to prevent exudation of the solution. Do not inject into an abscess cavity, as the fluid escapes into the mouth and is apt to paralyze the muscles of respiration there. Two injections of from two to five drops each of a two-per-cent solution, one on each side of the

tooth, are usually sufficient to produce complete insensibility to the pain of the operation. Much of the sloughing of the gums is due to septic matter on the forceps, and not to the cocaine, so too great care cannot be used in the sterilization. If the mouth be rinsed out freely with warm water after the operation, it tends to prolong the bleeding, and thus relieve the gorging of the blood vessels caused by their relaxation, after the over-stimulation from the use of the drug.

The Pacific Coast Dentist for April, 1895.

"Dental Jurisprudence, The Question of Skill," by H. R. Wiley, A. B., San Francisco. The writer says that while the law does not require of a dentist that he shall possess a degree of skill equal to that of the most eminent or most skilful man in his profession, and it is to be doubted that the most skilful man in any profession could in the treatment of each case that might come before him use all the knowledge and skill to which his profession had at the time advanced; nevertheless, the dentist must possess at least reasonable or ordinary knowledge and skill within the scope of his profession, if he would practice it with any degree of safety to either himself or his patients. He must not forget that the safety of his patients, while they are under his treatment, sustains a close relationship to his own welfare, as an unskilled operation resulting in serious injury may be followed by a judgment against him for heavy damages. For the law does require a dentist to possess average attainments in the line of his profession, and to keep himself informed concerning the methods indorsed by its leading authorities. If it appear in court that a dentist is wanting in these simple requirements of ordinary fitness, his defense will be exceedingly difficult, even though in the case at bar he shall not have been actually guilty of a malpractice.

"Disease of the Antrum of Highmore from a Medical Standpoint," by W. D. Babcock, A. M., M. D., Los Angeles; read before the Odon. Soc. of So. California, Feb. 7, 1895. The writer begins his paper by saying that there are several cavities opening into the nose; the largest of these is the antrum of Highmore, the maxillary sinus. Its shape is that of an irregular pyramid, its apex being towards the zygomatic process; its lateral walls

are formed by the orbital plates and the lateral plates of the superior maxillary bones; its base or inner wall, which separates it from the nasal cavity, consists of portions of the superior maxillary, palate and inferior turbinated bones, and the unciform process of the ethmoid bone. It communicates with the nose by a round or slit-shaped opening, the size of which varies greatly. The opening lies at the level of the anterior end of the middle turbinated bone, in the middle meatus. There is often a second aperture of communication below the center of the middle turbinated bone. According to Reschreiter, the antrum of Highmore in men always reaches a lower level than the nasal cavity. The lining membrane of the antrum contains acinous and tubular glands, and serves partly as mucous membrane, partly as the matrix of a periosteum for the walls of the cavity. The size of the antrum varies from the size of the little finger to that of a hen's egg, extending over to the roof of the mouth.

Only in the last few years have the troubles of the antrum been carefully looked into or had attention called to them. The cause of empyema of the antrum is disputed, most of the rhinologists believing that the trouble begins in the nose, while the dentists think that diseased teeth and their complications are the main cause. Many rhinologists agree with Zuckerhandle of Vienna, an authority on the anatomy of the nose, who states that the most frequent cause is inflammation of the nasal cavity. One authority, Bosworth of this country, thinks that the trouble does not come from the extension of acute inflammation of the nasal passage to the antrum, but it closes the opening to the antrum, causing, first, hyperemia of the membrane lining the sinus; with this an increase of secretion. This secretion, being confined, degenerates, becomes purulent, then we have empyema of the antrum. While bad teeth may sometimes be the cause, they are not the most frequent one. The first and second molar teeth usually project into the antrum; there is nothing in the antrum or its surroundings to cause decay. It seems that it is normal, not pathological, to have the teeth so project into the antrum, and where the conditions in the nose and antrum are normal, there is no cause for pus to form or necrosis to take place there, because the teeth do project into the sinus. If one could always get the history of the attacks of nasal catarrh which have caused

the closing of the nasal passage to the antrum, the cause would often be made clear. During the last epidemic of influenza there have been many cases of acute suppuration in the antrum. Most of the chronic cases are the result of repeated attacks of acute nasal catarrh, which have caused a pathological condition of the nasal mucous membrane at or about the opening of the antrum. This condition may be either hypertrophy of the mucous membrane of the middle turbinated bone, or it may be polyps or polypoid degeneration of the membrane. There are few cases of polyps in the nose that there is not antrum trouble.

The pathological condition as described by Bosworth is given: "At the outset of the affection the mucous membrane is hyperemic, slightly swollen and with its surface dotted over with minute points of ecchymosis, due to the fact that the blood vessels coursing through the membrane possess exceedingly thin delicate walls, which rupture easily, giving rise to slightly localized hemorrhages. As the disease progresses the membrane becomes swollen to ten or fifteen times its normal thickness, this swelling being largely due to an œdematous condition. * * * This inflammation involves not only the superficial but the deep layer of the membrane which, in this region, constitutes the periosteum of the bony walls of the sinuses. In connection with this there is a somewhat profuse serous exudation, under which the blood-vessels unload themselves, and the swollen membrane to an extent subsides, followed by a more or less profuse secretion of sero-mucous, together with blood, and this in the course of time—occupying weeks or months perhaps—results in a discharge of pure laudable pus. The latter stages of the disease are characterized by a certain activity in the deep layers of the membrane, or periosteum, under which are formed lamellæ, or spiculæ, of new bone, which may project into the cavity or may form thin plates crossing it in such a way as to divide it into two or more small chambers."

The trouble may have been latent for some time before the dentist or physician is called upon for assistance. It may be present for years before it announces itself. There may be no pain or swelling in the affected cheek, and the manifestation of the disease be a nasal secretion of a continued or intermittent character, fetid or without odor or pus. If the disease has been

of any great duration the health of the patient becomes impaired, he suffering from a mild degree of septicemia, from the absorption of pus. The classical symptoms are not usually present together—such as distension of the antrum, swelling of the cheek, infraorbital pain, escape of pus, lying on the sound side. Some clear reports of antrum troubles have been made during the epidemic of influenza for the last two or three years. Many cases have the same symptoms as this one, caused by influenza: considerable coryza, a watery discharge from both nostrils, a sense of fullness in the left cheek, increasing to intolerable distension of the zygomatic region. The skin over the part became swollen, reddened and tender to the touch; temperature 100.5. No frontal neuralgia present. In twenty-four hours a violent blowing of the nose brought away an ounce of turbid, greenish, purulent fluid; lowering the head to the right brought away more. Shortly after a third escape, followed by a fourth. The acute complication now subsided, although two days after another discharge took place, signaling the end of the affection. The noteworthy points are: the sudden and violent increase in pain during sneezing or coughing; the limitation of pain to the affected region, and the tendency of influenza to single out the locality of its sequellæ in different individuals.

In some cases there is great pain in the upper jaw; the teeth seeming to be elongated. There is pain in the ear, occasionally resembling supraorbital neuralgia. The supraorbital pain is far more frequent than the infraorbital. There is an intermittent, nasty odor, quite evident to the patient but unnoticed by others, which can be observed by the patient drawing the mucus down and back into the posterior nares; this is caused by drawing the odor out of the antrum. Usually pus comes out from behind the middle turbinated bone, and the pus at the anterior end of this bone pulsates at times.

Blennorrhœa of the nose rarely occurs without disease of the accessory cavities, and where this symptom occurs it is usually due to empyema of the antrum. Headache will usually be in the frontal region. The opening in the antrum from the nose will generally be covered by polyps, or either polypoid degeneration of the mucous membrane of the middle turbinated bone, or hypertrophy of the same. Denuded bone about the opening can

very often be felt with a probe. There may be pain on percussion. There is likely to be a feeling of distension, with an increase of pain on the affected side, headache and sickness of the stomach toward evening, as, owing to the patient's erect position during the day, no pus can be discharged. Usually there is free drainage into the nose, and the trouble seems to be periodical.

One means of diagnosis is the electric lamp in the mouth. In the healthy subject the pupil has a red reflex, and there is a bright almond-shaped space under the eye. If these two are dark, very likely there is trouble in the antrum, and if there is pain above the eye and in the side of the head, and pus in the nose, a diagnosis should be made for pus in the antrum. Very often antrum troubles do not happen alone, but are generally associated with suppuration in the ethmoidal and spheroidal cells and frontal sinus, which condition must be treated with the antrum. If the diagnosis is doubtful, a few drops of hydrogen dioxide thrown up behind the middle turbinated bone and into the antrum will usually decide the question. If pus is in the antrum a commotion will be felt, and the foaming from the decomposition of pus will be plainly seen under the m. t. bone. If the cases could be seen at the beginning of the antrum trouble, the treatment would be easy and simple, but generally the patient does not apply for relief until all the complications have set in, when the trouble is difficult to combat.

The treatment is surgical: open the antrum; give good drainage. The best place for an opening is between the second bicuspid and first molar and under the molar process, as this is the point where usually the lowest point of the antrum can be reached. After the antrum is opened it must be washed out and kept clean; any cleansing solution will do. Remove all complications, such as polyps in the nose, enlarged middle turbinated bone, pus in the ethmoidal cells and in the frontal sinus, all of which may be the cause of most of the empyema of the antrum. If there is no complication it is a good plan to open into the cavity through the socket of an extracted tooth. If the case is of any duration there is likely to be polyps in the antrum or polypoid degeneration of the mucous membrane, which condition must be removed by curetting or scraping of the cavity. The mucous membrane of the cavity may be in folds. There may be bony septums growing in the antrum,

the result of inflammation; these must be broken down. One aid to recovery is that the opening in the nose is much larger in pathological than in normal cases. Some operators open both through the inferior meatus and between the bicuspid and molar teeth. Others have cured by the injection of fluids through the opening into the antrum through the inferior meatus under the inferior turbinated bone. Still others treat by the dry method: clean the cavity by irrigating it well, dry thoroughly with air, then blow iodoform or any antiseptic powder. After curetting the cavity is often packed with bichloride or iodoform gauze. In any case the cavity must be made and kept clean, but too much force should not be used in washing it out. Hard or soft rubber tubes are very good to keep the opening open; gold tubes are also used.

Items of Interest for April, 1895.

"Care of Infants' Teeth," by W. N. Morrison, D. D. S. The writer believes that physicians and nurses are entrusted too long with the care of the mouths, gums and teeth of infants, and that they are neglectful of their trust. The dentist is not called in until the teeth are erupted, eroded, and sometimes irreparably decayed. Three-fourths of the deaths of infants under the age of three years is caused by complications arising from their teeth. Nervous tension, not relieved by normal growth or development of the parts, seeks relief in reflex action on the stomach and intestinal track. Let the mother rub the alveolar ridge and plate with the thumb and finger, and endeavor to expand the arch for the teeth in a natural direction of growth or development, and use the lancet frequently over the points of greatest tension. Infants have been brought out of spasms by the timely use of this instrument, and have even had their lives saved. They should not be given drugs, soothing syrups, or so-called harmless vegetable or animal compounds, but should depend on physical development. Condensed milk teeth are not up to the standard. The same massage is good for older children when the second teeth are erupting.

"A New Dental Law Proposed," by Dr. C. H. Dunning, St. Louis, Mo. The writer suggests the following plan which will produce better dentists and give a general standard of ability: 1. Have a National Board, whose duty shall be to formulate a series

of questions each year for the use of the different State Boards, and also to determine what other qualifications, if any, are necessary for the practice of dentistry. 2. Have State Boards appointed by the Governors of the different States. The boards to meet twice a year, and submit questions to applicants for examination as have been furnished by the National Board, and to grant diplomas to the successful candidates. These diplomas are to be *prima facie* evidence of qualification as required by the National Board, and recognized by the laws of every State in the Union. 3. Compel all dental students to article themselves to some dentist to remain in continuous service for three years, except during the sessions of their colleges, where they must be in attendance. Thus they would get both practical and theoretical instruction.—By this means permits to practice dentistry would be given on merit only, and a dentist with a diploma from an Examining Board would be free to go and practice his profession anywhere he felt inclined, and we would also insure the public against the malpractice of those who are obtaining their diplomas from our colleges without sufficient knowledge of dentistry.

“Varnishing Cavities,” by W. G. Browne, Atlanta, Ga. The writer says that owing to the incompatibility of tooth-substance and the materials used for filling teeth, it is best to interpose some substance between the material and the dentine, and he recommends a clear resin, such as damson, dissolved in chloroform. It acts as a non-conductor of thermal changes, as well as an insulator against electrical influences. It is not readily soluble in the fluids of the mouth. Being transparent, no discoloration is shown when used where enamel walls are thin; in fact, it prevents discoloration of the tooth from oxidization when an oxidizable amalgam is used. It is helpful in starting large gold fillings, holding the first cylinders firmly to the dentine, and lessening the danger of the fillings coming out. While it does not by any means supply all the anchorage needed, the varnish does away with the deep retaining pits.

“Repairing Rubber-Plates.” Plates repaired in the following manner seldom break in the same place: Put the halves together and drop hot sealing-wax on the lingual surface of the plate, thus firmly setting the two parts together. Make the groove on the labial surface by cutting a little away and boring

a few holes. Press a small piece of rubber in with a hot spatula, then invest the plate in the lower flask with the plaster up to the edge of the teeth. When hard scrape the sealing-wax off, put on the upper flask and invest. When separated there is a smooth surface and the plate of the original thickness. With a sharp enamel chisel gouge in the plate, making zig-zag shaped cuts. Follow the crack and cut down nearly through them, then bevel off sideways as far as the new rubber is to go. Do not drill any holes or dove-tail. The new rubber will attach firmly to the old. In putting on new blocks of teeth file the rubber sufficiently to admit of the new block being ground in. Zig-zag the rubber with chisel, and when ready put on small pieces of rubber and press with hot burnisher. Now invest in the full flask, screw the bolts and vulcanize. This method saves waxing or opening of flask till done, and two or three cases can be put in one flask.

The Dental Cosmos for April, 1895.

"The Influence of Pregnancy upon Dental Caries," by Reuben Peterson, M. D., Grand Rapids, Mich.; read before the Grand Rapids Dental Society, Feb. 13, 1895. The writer says that the teeth are probably more liable to become carious during pregnancy, and he gives the modern theory of dental caries: To the general practitioner nothing can be more proven than the chemico-parasitic theory of caries. Dr. Miller has applied the rules laid down by Koch for the study of pathogenic organisms, and has demonstrated that under certain conditions there exists in the human mouth a living ferment capable of self-production; that this ferment produces an acid at the point of contact with the tooth, capable of dissolving lime-salts. It was also shown that this was lactic acid, and that the micro-organisms were anærobic, and therefore could live and thrive deep down in the carious mass. In some fissure of the enamel not washed by the saliva, and thus giving a chance for the lodgment of food, the micro-organism begins its work. The acid is produced and the hard enamel decalcified, and the softer dentine within exposed. By means of the dentinal tubules the micro-organisms gain an easy access to the interior of the dentine. The tubules are packed full, and more lactic acid is produced and more decalcification follows, until the carious cavity is produced. Because of the

ramification of the tubules just beneath the enamel, there is a marked tendency to decalcification from the action of an acid devoid of the presence of micro-organisms. The fact that the tubules are not widened is one among other proofs which go to show that bacteria are at the bottom of the carious process.

This theory being correct, how can it be explained that pregnancy exerts a marked influence upon caries of the teeth? It must be due: 1. To influences affecting primarily the interior of the tooth; or 2. To influences affecting primarily the exterior of the tooth; or 3. To influences affecting at the same time both the internal and external surfaces.

The most commonly accepted theory as to the cause of caries during pregnancy is that the lime-salts are abstracted from the tooth to supply the demands of the growing fetus, but there is not one scientific fact to support this theory. The teeth are not supplied with any system of absorbents whereby the lime-salts can be abstracted, so how can they be carried to the fetus from the tooth? Of all the tissues in the body, the teeth are least liable to undergo changes dependent upon nutrition, and were this not so, a few months of low diet would leave the individual without teeth. If it were necessary to take lime-salts from the mother for the fetus, why are not the bones, which are supplied with absorbent vessels, selected? But there is no evidence that they are affected as it is claimed the teeth are. At first glance there seems to be an analogy between dental caries and osteomalacia, pregnancy exerting an influence over both, most cases of osteomalacia occurring during gestation, and both accompanied by a loss of lime-salts. But a microscopic examination of the diseased structure in osteomalacia shows that at some stages it is a true inflammation, which cannot be said of caries. Another theory to explain the supposed abstraction of lime-salts is, that just enough phosphates are taken into the system during pregnancy to supply the needs of the fetus, and that the natural waste of lime-salts of the tooth is not replaced, hence the tooth suffers. This is more plausible, as there is probably more or less waste and repairs going on in the tooth all the time, and the tooth might become impoverished were the supply of phosphates not sufficient. But a weak point in this view is, that women always excrete phosphates during gestation, and bony growths are found in the inner surfaces of

the calvaria and even in the pelvic bones. They have been found to exist in over one-half the cases of women dying after the fifth month of pregnancy.

A more rational theory to account for dental caries during pregnancy is, that the secretions of the oral cavity become more acid during gestation. For acid secretions will evidently furnish the most assistance to the entrance of the micro-organisms into the interior of the teeth, by causing a decalcification of the enamel, or furnishing a soil suitable to the rapid development of the bacteria. The oral secretions should be tested for acidity during this period, and there is much probability that such a condition does exist. The blood must be looked to for an explanation. It is probable that besides the increase in white corpuscles, fibrin, and water, there is a decided diminution in the alkalinity of the blood. One writer ascribes this condition of the blood to the influences of lithemia upon the maternal organism. The similarity between the symptoms produced by the lithemic condition and those accompanying pregnancy are striking. "As in the *resumé* of lithiasis, I wish to recall the persistent effects upon the system caused by the occurrence of a single pregnancy which, manifesting themselves by various lesions not to be ascribed to any other influence, and indicating the permanent adoption by the constitution of a morbid action, which must be regarded as being closely related to lithiasis. In endeavoring to establish a parallel, if not an identity, between the constitutional tendency produced by lithiasis and pregnancy, I have indicated that both originate in a grave disturbance of nutrition; they present a similar modification of the blood; the pathological changes bear a close resemblance; the prominent functional disturbances are broadly identical; the numerous sequellæ are similar; and lastly, after one or more visitations, the constitution is prone to adopt the induced condition as a diathesis." In gingivitis the saliva is extremely acid, and this disease is more prevalent, and of greater severity, in persons of a rheumatic or gouty diathesis. The diseases are characterized by an excess of uric acid in the system and a diminution of alkalinity of the blood. Pregnancy is an essential feature in the production of osteomalacia, although just how it acts is not known.

To summarize: 1. It is probably true that dental caries is

more liable to occur during pregnancy. 2. Dental caries is a disease characterized by a molecular disintegration of the normal constituents of the teeth. 3. The disease is caused by the action of certain pathogenic micro-organisms which produce lactic acid, which in turn decalcifies the enamel and exposes the dentine to the attacks of the bacteria. 4. It is improbable that lime-salts are abstracted from the teeth to supply the needs of the growing fetus. 5. More than enough phosphates are ingested to supply the needs of both mother and child, hence the maternal teeth do not suffer from lack of nutrition. 6. During gestation, osteophytes are found, showing an excess of lime-salts in the system. 7. The true explanation must be looked for in some change in the oral secretions, which thereby furnish a more favorable soil for the development of the micro-organisms. 8. There is evidence to prove that the saliva is more acid during pregnancy. 9. This condition is probably due to changes in the blood, whereby its alkalinity is diminished. 10. The analogy between this and the lithemic condition is striking. 11. Vomiting of pregnancy, while it may to some extent aid, cannot be considered a potent factor in the production of caries. 12. Neglect of the teeth during pregnancy cannot be proved to be more prevalent than at other times, and therefore should not be considered among the causes of caries.

"Pulp-Protection," by W. Storer How, D. D. S., Philadelphia, Pa. The writer says that the floor of the cavity in a carious tooth sometimes has a place where the wall of the pulp-chamber has but a thin septum between it and the cavity-floor, and the pulp must be protected from thermal shock or irritation. A suitable sized disk of rubber-dam is very good for this purpose. When the cavity is formed and dried for filling, lightly touch the cavity-floor and walls with a very little mastic varnish. Place a small disk of dam over the cavity-floor; mix some cement, suitably soft; put a little on the center of a second disk and place its cement side on the first one. Then spread the cement under the second disk with a ball burnisher to completely cover the cavity-floor and partially cover the cavity-walls. After the cement has set, the cavity can be filled with whatever material is preferred. The pulp will be doubly protected by the two rubber disks, and the second can be shaped with scissors to suit the cavity. Thin gutta-percha or par-

affin-paper disks, as well as those of vulcanizable rubber may be thus used, and any are preferable to metal disks. When a cavity is filled wholly with cement, a rubber disk, pressed around with a ball burnisher, will carry the cement against the cavity-walls and leave it there; a plugger sometimes carries some cement out with it. An oiled mica matrix, because of its thinness, smoothness, flexibility, resistance to acids, shapability with scissors, and cheapness, makes an excellent readily-applied and removed cavity-wall. It may be fastened around the tooth with gutta-percha, and if adjusted carefully, no subsequent finish will be required. As the mica matrix is very elastic and frail, care should be taken that it does not spring away from the tooth, and that no broken pieces are left between the teeth.

"Function of the Palatal Rugae," by Henry Burchard, D. D. S., M. D., Philadelphia, Pa. The palatal rugae may be described as a series of ridges running in a transverse direction, and having usually a curved outline. Those of the smallest radius are most anterior, those of increasing radius posterior, and those most posterior are commonly almost at right angles with the median line. They extend to about one-half the length of the hard palate. There is also an ovoid elevation overlying the incisive foramen, which Dr. Allen names the incisive pad. Frequently there is a longitudinal elevation in the median line, overlying the line of junction of the palatal processes of the right and left superior maxillae. Immediately behind the ridges which embrace the cervices of the incisor teeth are usually the most marked rugae, the highest and shortest; and they grow shorter in height, increase in length, and their curves lessen, until the most posterior are nearly straight.

In all text-books on physiology, the earliest stage of deglutition mentioned is that of the passage of the bolus to the space between the muscles of the soft palate and the dorsum of the tongue; its passage thence to the constrictors of the pharynx is described as the first stage of deglutition. Properly, however, deglutition begins as soon as mastication, and its coincident insalivation, is completed, and the bolus gathered into the longitudinal furrow of the tongue. The tip of this organ becomes fixed by engaging with its dorsum, the anterior rugae, and the action of its intrinsic muscles gives a somewhat wavy movement to the dor-

sum which engages progressively succeeding rugae. The anterior part of the raphe of the tongue is in contact with the incisive pad. The bolus is, through the movement of the tongue, literally squeezed to a passage where it is surrounded by muscles, and then passes to the pharynx. The curving direction of the most anterior of the rugae and the presence of the incisive pad insure a better, a firmer contact of the tongue's tip than if these ridges had a straight transverse direction. The posterior rugae being usually nearer straight, serve to make a better contact than if curved, for here the surface of the tongue is engaged in straight lines. That these prominences do not extend farther back on the palatal processes is because they would be useless there, for the muscles of the soft palate and those of the tongue serve to propel the bolus toward the pharynx. Of course the rugae assist the tongue in its government of the position of the food during mastication. They also aid in the formation of certain letter signs, but this is a secondary function.

"Amalgam—Its use from a Practical Standpoint," by Dr. W. E. Halsey, Brooklyn, N. Y.; read before the Second District Dental Society of New York State, Feb. 11, 1895. The writer says that dentists should know the metals and their relative proportions when combined, so that, if satisfactory and pleasing results are obtained from the use of a certain alloy, the reason may be known; and if the opposite is the case, that the fault may be corrected. The best way to prepare an amalgam mass is by combining the alloy and mercury by weight; having first experimented until the correct proportions are obtained. The ability to use zinc phosphate and contour amalgam in combination is only acquired after considerable practice and a thorough knowledge of the working qualities of each. The powder and liquid of the zinc phosphate are placed on the slab ready for mixing, an excess of the powder being assured. The alloy and mercury of the quantity desired are weighed out in such proportions as are known to make the desired mix, placed in the mortar and triturated to amalgamation, removed to the hand and kneaded into thorough homogeneity, which is quickly done, as the mass should be of decided plasticity. The amalgam is retained in the hand, the warmth of which will retard setting while the cement is being mixed. The cement should be plastic enough to allow of lining the walls of the cavity

with a considerable bulk. A portion of amalgam, of about equal consistency, is quickly placed in contact and interdigitated into the cement in such a way as to cause the cement to dome in the center of the crown, and also to crowd toward the outer edge of the cavity. In this way a very strong foundation is obtained, the weak walls strengthened and a good color secured. As the cement hardens the enamel edges are cleaned of it, and the building up and contouring with amalgam continued. A number of mixes are necessary, and the last additions are thoroughly wafered, which allows of perfect contour-work, enabling the cutting away of any surplus, and the easy addition where necessary.

Gutta-percha is recognized as being a perfect non-conductor, possessed of good color, easily worked, and more nearly approaching perfect compatibility between filling and tooth-bone than any other material in the whole list, and therefore ranking first as a preventive of recurring decay, but its total lack of edge-strength limits its use as a filling to those cavities which are not exposed to attrition. Zinc phosphate is possessed of excellent color, does not shrink, has great adhesive power, and is comfortably worked. It is not to be used in close proximity to a vital pulp, nor is it to be relied upon as a permanent filling, as it is subject to more or less rapid disintegration when exposed to the fluids of the mouth. Amalgam possesses all the edge-strength needed, resists attrition and the oral fluids, is so readily worked as to permit of any extent of contour-work, even to the entire replacement of a lost crown on bicuspid or molar roots, and has a desirable degree of compatibility when in contact with dentine, as is evidenced by its tooth-saving quality. However, it lacks proper color, is a conductor of electricity and thermal changes, and shrinks, bulges, and spheroids in proportion to the low grade of its alloy and the excess of mercury contained.

As a typical example, a superior second bicuspid is presented which we desire to save. The patient is young and the tooth-structure soft and frail. The whole approximal walls are lost by decay, also a large portion of the grinding surface; the fissure also is decayed deeply, uniting the approximal cavities, which are partly filled by hypertrophied growth of gum-tissue. At the first sitting the cavities are syringed with warm water, and carefully packed with cotton saturated with oil of cloves or campho-

phenique, to crowd out intruding gum-tissues, secure slight separation, and obtund sensitive dentine. At the next sitting the bicusps and first molar are placed under the rubber, the edges being carefully tucked under the gum with a thin scaler without the use of ligatures, and the cavities dried. The enamel edges are carefully trimmed, conserving all that will be consistent with zinc phosphate as a liner and strengthener. The decay is carefully removed from the circumference of the cavities, and, if sensitive, obtunded with oil of cloves, eugenol, or campho-phenique, avoiding any of the escharotic agents. A considerable portion of softened dentine is conserved over the region of possible pulp-exposure, and carefully protected with a thin wafer of low-heat gutta-percha, which is easily placed by picking it up with a warmed instrument touched to the wet stopper of the cajuput bottle, warming slightly over a spirit lamp, placing accurately in the cavity, and pressing the edges into apposition. The oil of cajuput softens the gutta-percha just enough to cause adherence, and also acts as an obtunder.

The first demand for the salvation of such a tooth, when the cavities are prepared, is pulp-protection; and for this gutta-percha is selected without hesitation, three wafers being necessary, one in each approximal cavity and one at the bottom of the fissure.

The second need is to guard against recurrence of decay at the cervical margin, and submarine amalgam is used, being built down to a line with the gum festoon, the last portions wafered and the edges carefully trimmed with a very thin sickle scaler. The hardening by wafering and the careful trimming and finishing of this portion of the filling at this time is a very important point, as it never afterward can be so well and easily done. The third need is the strengthening of the frail enamel-walls and the prevention of their discoloration. Zinc phosphate ranks first in these desirable attributes, and may be used in combination with the amalgam while both are plastic, or simply as a liner mixed to a plasticity which will allow of easy and thorough adaptation to the cavity-walls with a small ball burnisher, occasionally touching the instrument to an oil-pad to prevent adhesion of the cement. And now the conditions call for a material possessed of excellent edge-strength, resistive to attrition from mastication, and of good color. Contour amalgam, when properly inserted, fulfills these

conditions most admirably. Amalgamated with sufficient mercury to render the mass plastic, the first piece is placed in apposition to the previously-inserted submarine amalgam in the distal cavity at the cervix, and tapped into thorough amalgamation; each succeeding piece is inserted and tapped (not burnished) into homogeneity until the distal cavity is wholly filled, contoured, and extended into the fissure; the last portions are wafered, and the lost contour is carefully restored. The mesial cavity is filled in the same manner, uniting the two fillings in the fissure. The wafering must be thorough, rendering full contouring and finishing easy, therefore insuring a minimum of shrinkage and strong edges. Such a combination filling must appeal to us all as fulfilling its mission of tooth-salvation; the pulp is protected from all outside influences; the weak walls are strengthened and color is maintained; the recurrence of decay is guarded against by a coppered amalgam at the cervical wall, and the lost contour restored. The result is a tooth of good appearance, with a prospect of years of comfortable service.

The Dental Review for April, 1895.

"How Can a Dentist Best Improve and Enlarge His Practice Ethically," by W. H. Fox, D.D.S., Chicago; read before the Chicago Odontographic Society. The writer says that a code of ethics is necessary to the satisfactory diffusion of knowledge and unity of method in practice. The necessity of a code is that all persons subscribing to its provisions shall act within certain restrictions, and shall follow along those lines which have been selected as exemplifying the greatest good, those lines which develop within one the highest traits of which one is capable, and which give to the world the honest returns of intelligence. The lethargy which predominates within the dental profession, upon ethical procedure, permits those phases, dangerous to the high standard, to appear, and while this lethargy cannot affect the integrity of the science, it can hurt the profession in the minds of the public. A young dentist should spend his spare time in reviewing past information; this will keep him from discovering a 'new method' which was discarded as impracticable years before. New methods should be tried and old ones performed in different ways. The periodicals of the day should be carefully read and studied, and

the progressive element of the profession should be his associates. Lastly, a dentist is always judged by his patients, for he surrounds himself by those of his stamp of character.

"Chronic Alveolar Abscess with Complications," by Truman W. Brophy, M. D., D. D. S., Chicago. While acute alveolar abscess is usually amenable to treatment and is promptly cured, if the disease becomes chronic and is attended with complications, the very best judgment must be used in making a diagnosis, and in outlining and following the treatment required. If a tooth having a chronic alveolar abscess fails to respond to the usual treatment, namely, cleansing of the canals, with the proper use of antiseptics and stimulants, there is a complication present. This complication may be the denuded apex from which the pericementum has been destroyed by the process of suppuration. The carious bone surrounding the apex of the root of a tooth gradually breaking down and minute granules thus forming in a sac or cavity, may find their way to the surface through the fistulous opening that is established. This fistulous opening may not be visible. If a superior incisor tooth, the fistula may extend into the nasal passage, and if an inferior, it may make its way beneath the chin, or occasionally the fistulous tract may extend as low as the clavicle, and in one or two instances on record we find the fistula as low down as the nipple, the pus passing down the long tortuous tract to be discharged at the point mentioned. If it were a superior bicuspid or molar, the pus may find its way into the nasal passage; it may extend backward into the antrum of Highmore, and thus establish a complication which does not always yield promptly to treatment. It may extend back to the tuberosity of the maxillary bone and find its way into the sphenoidal fissure. The pus may from an incisor tooth, as has occurred in several instances in my practice, burrow backward to the anterior wall of the antrum, and find its way into that cavity.

From this complication last noted, the pus making exit in the antrum of Highmore, we may have still further the complication of filling of this cavity with pus, the closure of the natural opening leading from the antrum to the nasal passage, resulting from continuous irritation of the membrane at this point, and then we may have an elevation of the floor of the orbit—a bone that is exceedingly thin and translucent—bringing on intense neuralgia from

the pressure of the fluid against the infraorbital nerve, and finally the pus may penetrate this thin plate of bone in the cavity of the orbit, find its way anteriorly and make its escape just at the lower canthus of the eye. Such a condition, with pus escaping from the fistula opening from the lower lid of the eye, or even dribbling from the lower border of the eye, may deceive even the most skilled ophthalmologist. Again, if pus makes its way from the antrum into the nasal passage through a small fistulous opening, or through an opening which is not occluded by the process of inflammation and adhesion, the condition may be easily mistaken for suppurative nasal catarrh. Pus, in making its escape, usually follows the course which affords the least resistance, but not always so; for we find sometimes that pus forming at the apices of the roots of incisor teeth, instead of escaping from the anterior alveolar plate finds its way back into the cancellated structure of the superior maxillary bone, passes through to the hard palate, either making a fistulous opening upon the palate or elevating the periosteum, separating it from the bone, and forming a large fluctuating mass beneath this membrane; such a condition is a dangerous one. It is not necessary to state that a bone deprived of its periosteum is in a critical condition for the want of nourishment which is furnished through the medium of this membrane. It, especially in persons of low vitality, is liable to become carious and cause a very serious complication. I would state that the reason why we have carious bone in some cases, and necrosis in others from apparently the same cause, is due to the degrees of vitality met with in different subjects. For instance, a strong, vigorous, healthy person having an alveolar abscess form, may have as a complication caries of the bone if the condition becomes chronic, resulting from lack of care and lack of treatment, or improper treatment. If, on the other hand, a person of vitality, one who is suffering or has suffered from specific disease, were to suffer from the same pathological condition, he, in consequence of a failure of the tissues to repel the advance of the inflammatory process, or to resist it, might have, and probably would have the circulation overwhelmed, osteitis and stasis established, and necrosis of bone as a result.

Another complication, usually common in dental practice, is an alleged pyorrhœa alveolaris. We have all of us been called

upon to treat cases which have been in the hands of others and treated for pyorrhœa alveolaris, when the suppuration seemed to be confined to one or two teeth—sometimes three or four teeth. The pus, which was supposed to be the result of pyorrhœa alveolaris, was not by any means due to that disease, but was a discharge from an alveolar abscess down between the root of the tooth and the alveolar process, then discharging at the neck of the tooth, between it and the gum tissue.

Another complication, and one which is attended with a great deal of pain is due to partial death of the pulp. In case of exposure of the pulp at the end of the roots from any cause, as from absorption of the gums and alveolar process, the apical pulpitis terminates—if permitted to take its course—in suppuration. If this exposure occurs at the apices, e. g., of the buccal roots of a superior molar, we have a result, eventually, death of those branches of the pulp in these buccal roots, while the branch supplying the palatal root may be still living. In such cases, we have a flow of pus from the gums which is easily mistaken for pyorrhœa alveolaris, and yet emanating directly from an alveolar abscess situated at the apices of the buccal roots of the molar tooth, while the continuous irritation of that portion of the pulp still living in the palatal root keeps the patient in constant pain. These cases are, in my judgment, more common than is generally realized. Indeed, we have cases where there is no marked absorption of the gum tissue or alveolar processes, where from caries a portion of the pulp may be devitalized as a result of continuous irritation, while another portion within another root may yet live. In such cases we have a flow of pus along the walls of the tooth and about the gums on the affected side, while a tooth may be sensitive when tested on the neck by heat, or by any other method to ascertain whether it be sensitive or not, and the operator in consequence thereof may be misled.

Still another complication of chronic alveolar abscess we have in frequent accumulations of pulp nodules, affecting one or more roots within which is vital pulp tissue, while another root may be free from these nodules, the pulp tissue within dead, and an abscess at its apex.

The writer urges the profession to make a careful diagnosis in such complications. Complications of chronic alveolar abscess

frequently cause deformities, permanent physical infirmities, septicæmia, and loss of life, so the subject should be thoroughly understood. The parts must be kept antiseptically clean, and while antiseptics are invaluable in both chronic and acute conditions, some agent must be employed to promote the formation of granulations. Stimulants are essential, even carrying them far enough sometimes as to cauterize the surfaces upon which we expect healthy granulations to form. Antiseptics, germicides, etc., are capable of preventing, and, in some instances, arresting the formation of exuberant granulations and fungi, but now and then in surgical practice the milder forms of these agents are impotent when used for the purpose of establishing a new condition, namely, the destruction of extensive fungi and the promotion of the formation of healthy granulations, and thus aiding the process of repair.

"Some Points on Solutions of Iodine," by W. V-B. Ames, D. D. S., Chicago. The writer says that the need of ideal antiseptic dressings for the root-canals of pulpless teeth, led him to experiment with iodine solutions, because of the satisfactory results of a considerable use of iodine as liberated from a solution of iodide of potassium by electrolysis as a remedy in pyorrhoea pockets. Iodine is soluble to some extent in all volatile oils and most other fluid hydrocarbons. The ideal solvent seems to be terebene or other terpenes, having the composition $C_{10}H_{16}$. Terebene will dissolve twice its own weight of iodine and yet have a decidedly fluid consistency. The solubility of iodine is peculiarly affected by the presence of tannin, which fact immediately suggests its use in connection with the solution of tannin in glycerin much used as an application to recently devitalized pulps. While plain glycerin will dissolve only about 1 grain to the drachm, if tannin be added in proper quantity at least ten times that quantity will be readily taken up.

The use of solutions of iodine in such agents as creosote, carbolic acid, and campho-phenique are precluded by their objectionable odor. The most valuable solution of iodine resulting from my experiments has been that in oil of cassia. Pure cassia with iodine dissolved to the extent of 2 grains to the drachm by weight will make a syrupy solution, which seems to be a new compound differing radically from its components, being less irri-

tant than either of the constituents. Its syrupy nature renders it easy of application to pulp canals. It is only slightly soluble in water, and yet such solution gives all appearances of being a potent germicide and antiseptic. From my use of this combination I feel more confidence depending upon it as a dressing to be sealed up for months, or possibly permanently, than any dressing previously used. If pure cassia is used the mixture will become in time quite hard, so that it is necessary to make a fresh solution from time to time. This hardening or stiffening answers a useful purpose oftentimes when used as a dressing or pulp chamber filling, as it becomes in that state almost insoluble. For the temporary setting of crowns, a solution that has become quite stiff can be used as so much cement or gutta percha, softening it somewhat if necessary by immersing in hot water the bottle or jar in which it is contained, the material stiffening again when cold. If a crown fits a root accurately it is held most satisfactorily with this *antiseptic glue*. I have taken them off after being worn for several weeks, set with this, finding a thoroughly aseptic condition within. For this temporary setting of crowns it is a great success when used of the proper consistency.

If it is desired to overcome the tendency to become hard in this mixture of cassia and iodine, a trace of terebene can be relied upon for the purpose. In the solution of 2 grains of iodine in a drachm of cassia, 1 or 2 per cent. of terebene is sufficient, or by using a little more terebene, it is practicable to dissolve more iodine, obtaining probably a more potent mixture and the same syrup consistency. For instance the following parts by weight might be used:

Pure oil cassia	1 oz.
Terebene	5 gr.
Iodine	5 gr.

By incorporating a sufficient quantity of a suitable insoluble mineral or metallic oxide with the cassia and iodine solution, a mixture similar to iodoform paste is obtained without the same disagreeable features. It is extremely essential that the oil of cassia be pure. Many samples contain a sufficient proportion of other oils, especially that of cloves, to render the solutions of iodine unsatisfactory. The oil of Ceylon cinnamon is not as satisfactory for this purpose as the oil of cassia.

The International Dental Journal for April, 1895.

"Bleaching Teeth by Electricity," by Dr. Albert Westlake, Brooklyn, N. Y. The writer describes the cataphoric effect of using pyrozone twenty-five-per-cent. solution in restoring the normal color of teeth in a few minutes. The same appreciation of current, strength and resistance must be considered as is used in cataphoresis on live dentine for cocainizing. * * * Mrs. A. Nervo-bilious temperament; presented right inferior incisor very darkly discolored, a proximal cavity, and incipient abscess. After carefully adjusting rubber involving teeth on both sides, I cleaned the cavity, opened canal, and removed the pulp; then passed a few shreds of cotton saturated with warm salt water in its place, after which I filled the cavity with pure absorbent cotton saturated with pyrozone twenty-five-per-cent. solution ethereal, and applied the positive pole galvanic current, in the shape of a needle, to the moist cotton, and placed the negative pole in the patient's right hand, repeating this three times as the cotton dried. I commenced with four, and increased to about twelve cells, when the tooth began to appear white in patches about the neck and half-way up the crown; this half of the tooth soon presented a bleached condition in sharp contrast to the biting-edge. I then transferred the negative pole and made a short circuit through the upper part of the tooth, after having cut a narrow ridge through the enamel of the biting-edge. I then filled the root-canal and cavity, and the biting-edge with gold. The tooth in other respects still retains a perfectly normal appearance. This first experiment in cataphoresis for bleaching took place on Friday, March 8. The bleaching did not occupy more than ten minutes. The additional cataphoric effect on the periosteum and adjacent tissue was beneficial, as the tooth is perfectly comfortable at the present writing, three days after the operation. * * * Miss T. Nervo-sanguine temperament; left superior central incisor had been treated and an attempt made at bleaching the tooth by a dentist in New Jersey. I removed the gold filling, and found that the tooth presented a dark straw-color. I applied the same method of application, but omitted cutting the biting edge. I found the cavity in this tooth much larger, but as the canal was filled with cement, the resistance was greater, and more current was necessary. I continued the application too long, and secured

too great a bleaching effect. I filled the tooth temporarily with gutta-percha, but will blend the extremely bleached appearance by inserting a lining of cement.

Proceedings of Societies.

The Odontological Society met for its thirty-sixth quarterly session at Alleghany City, Pa., March 10, 1895. Dr. J. S. Hertig of Waynesburgh, Pa., read a paper on "Local Anæsthetics." Humanity and self-interest, both demand that our operations be made as nearly painless as possible. How to approximately eliminate the element of pain without making more or less compromise with thoroughness has long been a momentous question with dentists. It still remains one with me in the cutting of sensitive dentine, but in the adjustment and use of ligatures, wedges, separators, rubber-dam clamps, and matrices; for the extraction of teeth and roots, excising superfluous and intruding portions of mucous membrane, we have in hydrochlorate of cocaine an agent that in most cases is a satisfactory eliminator of pain. Other salts of cocaine have been experimented with and one, tropacocaine, is claimed by some to be the most efficient. The nostrum vendors seem to have been the first to discover and utilize the efficiency of weak solutions of cocaine. To such an extent did their use prevail that Dr. E. C. Kirk had ten specimens analyzed and found that the highest per cent. of cocaine contained was 5.68, the lowest, two-tenths of one per cent. Those most extensively used in Western Pennsylvania contained less than 1.5 per cent. The wide use of these compounds demonstrated their comparative safety. Using the analysis of a popular nostrum published in a medical journal as a foundation, I commenced to experiment and found that as good results were obtained with 1.2 per cent. as with a greater amount. After experiments in combining other agents with cocaine, I have settled on the following formulæ:

No. 1. Glycerine.....	½ oz.
Aqua Distillata.....	1 ½ oz.
Hydrochl. Cocaine.....	12 grs.
Carbolic Acid.....	10 grs.
Iod. Potas.....	1 gr.
No. 2. Aqua Distillata.....	2 oz.

	Hydrochl. Cocaine.....	12 grs.
	Resorcin.....	15 grs.
No 3.	Glycerine.....	½ oz.
	Aqua Distillata.....	1½ oz.
	Hydrochl. Cocaine.....	11 grs.
	Resorcin.....	10 grs.

I have not found it necessary to add anything to these to fortify against the possible constitutional effects of cocaine. I have at times added one-fourth or one-fifth grain atropine, but find that marked constitutional effects of atropine were liable to be produced, and though not serious were alarming to the patient. Not more than one-tenth grain in a two ounce mixture should be used, if used at all. Carbolic Acid and resorcin prevent deterioration and are supposed to localize the effect. Glycerine aids in preserving and is said to accelerate osmotic action. Iodide of potassium ranks high as a disinfectant and tends to correct morbid conditions of the mucous membrane.

I have used these compounds for two years for producing local anæsthesia, by injecting into the mucous membrane, and they have given entire satisfaction, with none of the constitutional effects of cocaine and not one case of syncope. To get the best results have the needle point dressed to a short bevel, keep it thoroughly sterilized, have syringe in good order and see that all the air is expelled from it after filling, clean the gums with some disinfectant, carbolated camphor, made by mixing three parts of gum camphor by weight with one part carbolic acid, is good. It seems to be settled that a two per cent. solution of cocaine is equal to a stronger one for injection and is entirely safe. It also seems to be settled that the injection of not more than three-fourths grain will produce no serious results. To counteract an overdose use coffee, aromatic spirits of ammonia, whisky, nitrate of amyl inhaled, or morphine injected.

Dr. J. G. Templeton, of Pittsburg, Pa., read a paper by Dr. C. H. Land, of Detroit, Mich., on "Capillary Attraction and its Relation to the Adaptability of Filling Materials." All fluid substances have an adhesive attraction for solid bodies, and when two solid bodies are brought close together the fluid will demonstrate how great the adhesion is by traveling against the laws of gravitation, as into the pores of a sponge, a wick, or a very fine

tube like a hair. When a fluid substance is absorbed into a very small tube we call it capillary attraction, and when once occupying that space another fluid substance will not evacuate it, but we must resort to mechanical means. When pus or putrified fluid occupies the anterior portion of a small pulp-canal with a sensitive pulp just back of it, the most powerful drug will not have any immediate effect as an obtunding medium until the inert matter has been removed by mechanical means. The law of capillarity holds a fluid substance so firmly that chemical action is retarded—try experiment as follows: Take a small copper tube that is coated on its external surface with gold, put into it the strongest acid to remove the copper; at first it acts freely until the acid in the tube becomes satisfied, then we have the tube filled with a neutral solution held there by the law of capillarity, and retarding chemical action. The tube must be cut open so that constant change may go on. So it is in applying arsenic to an exposed pulp, if the canal is large at one end and very small at the apex the obtunding effect may travel a certain distance so that within twelve hours a large portion of the pulp may be removed without pain, but leaving a small portion not affected by the arsenic, and further application with the obtunded part in position seem to have no effect. A covering of pus, saliva, coagulated blood, etc., will act as a stopper and keep the arsenic from acting. All such must be removed by means of small instruments, the points being very fine so as not to force air or fluid matter before them, causing intense pain. Careful manipulation will remove the obstruction, and then the drug will have a chance to obtund that which remains of the living tissue.

Dr. C. B. Bratt, of Alleghany, read a paper on "Enamel Inlays." While porcelain inlays are very advantageous, the complicated apparatus and intense heat required have been a great hindrance to their general use. Enamel or glass inlays have none of these objections, and possess all the advantages of porcelain. We recognize that gold makes a better covering for the edges of the cavity than any other filling material. With enamel inlays we can make the margins of gold and the greater part in likeness to the tooth. For labial cavities in incisor teeth the important parts are color and contour. To match color make two inlays, the first for a trial piece which may be made hurriedly

without regard to fine adaptation, and without the use of rubber-dam, so that the tooth may maintain its correct shade, then set it with the cement you expect to use. Care should be used to get the correct shade of cement. If it is desired to allow the gold foil used in taking the impression to remain, the yellow shade must be overcome by the color of enamel used. To secure contour take the impression with gold foil, and in filling with enamel material for raised surface keep the material well up in the centre; for concave surface depressed in centre and well up on sides, never allowing any of the material to get beyond the edges of the impression. One way to adapt the inlay is to bevel the opening to the cavity like an inverted cone, then when inlay is forced into place a fine tight joint will be secured. One way to use this material and protect the margins with gold is to fill in about the walls and over the edges, finish and shape the cavity in the gold just as if gold was not used, then proceed as before. Another way is to use two layers of non-cohesive gold foil for taking the impression; after fusing the enamel and inserting, separate the edges of the foil and burnish down, turning the foil in contact with the enamel over the enamel, and that next the wall of the cavity over the tooth, and you have an excellent filling.

The Medical Age, May 10, 1895.

"Cocaine Inebriety," editorial. "Doctor Norman Kerr, who easily stands foremost among authorities on inebriety and narcomania, in his latest work mentions for the first time the Cocaine habit, remarking *en passant* that in his experience it is comparatively rare and for the most part confined to members of the medical profession. *Per contra*, a recent writer in the *Bulletin of Pharmacy*, writing from the standpoint of a pharmacist, seems to imagine the habit is much more widespread than has heretofore been considered, that it is continually increasing, and that its growing prevalence is largely due to the greatly reduced price of the drug. He also remarks that it is a pernicious habit among a certain class of pharmacists to offer "Cocaine when asked for something that will relieve toothache, neuralgia, and countless other aches and pains; that in some way the erroneous notion has come to prevail that in treating the morphine habit Cocaine is of great value in counteracting the effects of the former drug."

Proceeding on this principle, numerous quacks have claimed ability to cure the morphine habit, . . . but in its stead the patient become cursed with a vice far more ruinous than all their former ills. . . . To use Cocaine to cure the morphine habit is like jumping from the frying-pan into the fire."

"Certain it is, the Cocaine habit is the most seductive and terrible form of inebriety—the pleasant elation which the drug induces, and the apparent absence of unpleasant sequelæ that accrue to other forms of narcomania, lead to rapid destruction of the mental powers. Numerous cases of fatal poisoning by Cocaine have been reported in current medical literature, but the number of known Cocaine *habitues* is very few—perhaps because unrecognized or, as before mentioned, complicated with some other form of chronic intoxication.

"If it is true that both the medical and pharmaceutical professions are responsible for the spread of the Cocaine habit, owing to the freedom with which this most potent and treacherous narcotic has been prescribed for the relief of pain, it is certainly imperative that there be thrown about the sale of this drug restrictions which alone can be formulated and carried out by these professions, without any reference whatever to measures employed by the State.

"Doubtless pain has recurred after the soothing effect of the first use of the drug has passed away, and the same handy and charmed remedy is again had recourse to without any knowledge of the results that are certain and swift to appear. Thus the craving, beside which the fascination of morphine and opium is infinitesimal, has been acquired, and the victim awakes to the fact that he or she has become bound fast to a habit entirely unsuspected.

"It would appear also that in some instances the Cocaine habit has been acquired through the ignorant employment of a prescription by the physician as a succedaneum to opium or morphine, or for the relief of some teasing malady like vaso-motor coryza (hay fever). Nothing can be more disastrous than the substitution of Cocaine for some other drug, since it is considerably more speedy than any other narcotic in displaying its characteristic effects, and quicker in securing an abiding mastery over the taker; the stage of exhilaration being more pleasant than

that of morphine or opium, the drug is on this account also correspondingly more dangerous. Inebriates may indulge to most pernicious extremes in strong spirits for years without apparent mischief; some are even able to carry morphine narcomania to almost incredible lengths ere the drug manifests its deleterious qualities upon the physical and mental organism; but *per contra*, the mental decay and moral perversion of Cocaine excess quickly appear and as speedily increase in intensity. In some instances where the drug has been employed subcutaneously several times daily, an insane condition has developed leading to crime and to suicide; indeed, the Cocaine *habitué* is always insane and not infrequently a "raving maniac." There is also, under the influence of this drug, less sense of time than from any other narcotic, though all substances possessed of anæsthetic properties seem to have a disturbing effect on the mental capacity.

"While Cocaine raises the temperature, its effects are much more swift and short-lived than those of morphine, while its tendency in excess, is always toward delirium and raving madness. In fatal cases stupor and coma follow, with convulsions and paralysis of respiration—or, as Mosso and Kerr put it, "tetanus of the respiratory muscles." That Cocaine acts chiefly upon the central nervous system, first stimulating and paralyzing, is manifest; it contracts the peripheral blood-vessels. Under its use there is at first, usually, increased mental and bodily vigor, which speedily gives way to intense mental depression along with anorexia, insanity, hallucinations, and complete breaking-down of the mind, with volitional palsy and inhibitory prostration, all taking place in a much shorter time than the mental degeneration and physical decadence of alcoholism—in fact, demanding in many cases only as many weeks as alcohol inebriety requires years.

"The peculiar overwhelming danger of Cocaine addiction undoubtedly lies in the fact of the comparative absence of immediate after-effects. For some time at least—always, we might say, where the drug is partaken of in only limited quantities—"there is no *arrière gout*; no unpleasant taste in the mouth next day; no dry tongue; no nausea or morning headache; the pleasurable flow of happiness which seems to have left 'no sting behind' has indeed been a 'rose without a thorn.' Thus, deadly to all that is noblest and manly, to all that is 'lovely and of good

report' in human kind, this speediest of brain disturbers threatens to excel all other mind poisons in its fell sway over the intellect and conscience of man." (Kerr.)

"The drug is usually taken subcutaneously, and the doses frequently follow one another in rapid succession. Taken, as it doubtless frequently is, along with or after some other narcotic, it greatly complicates any attempt at alleviation of the latter. Doctor Mattison, of Brooklyn, has reported a number of interesting cases, as have likewise Erlenmeyer, Kerr, Connolly, Norman, and others, and all unite in the opinion that if taken in time the incipient form of Cocaine inebriety is quite easily relieved, but that the habit once confirmed is most intractable. Kerr declares one of his cases consumed thirty grains of Cocaine daily; the writer personally knows of an instance where three times this amount of this drug was daily consumed; and yet one-seventh of a grain has been known to prove fatal to a stout, healthy man.

"As regards treatment, there can be no dispute. It must be both mental and physical, and, like the treatment of all habits, is seldom of any utility except when carried on under complete and definite restraint."

Cocain Anæsthesia Rendered Harmless by the Addition of Trinitrin.—The author proposes the following formula, in which trinitrin is introduced, with the effect of preventing the anemia of the brain:

R Cocain muriat..... centigrms. xx.
 Alcohol sol. of trinitrin, 1 per ct.....gtt. x.
 Distilled water.....grms. x.

Each cubic centimeter contains two centigrams of cocain and one drop of the trinitrin solution. Gauthier has used this formula for two years with great satisfaction.—*Revue gen. de Clin. et de Ther.*

Ice to Relieve Dyspepsia.—Pictet found that when dogs were plunged in a bath of low temperature, and kept there some time, they became ravenously hungry. Being himself a sufferer from stomach disease, he had forgotten what it was to have an appetite; so, wrapped in a thick pelisse, he descended into a refrigerating tank, the temperature being many degrees below zero. After four minutes he began to feel hungry; in eight minutes he climbed out of the tank with a painfully keen appetite. Many such experiments were made, and all the meals he took after a short stay in the refrigerator agreed with him. He found his dyspepsia was cured after the tenth descent.—*Ex.*

Letters.

A REPLY TO DR. DRISCOLL.

PHILADELPHIA, May 7, 1895.

To the Editor of the Dental Digest:

DEAR SIR:—Dr. W. E. Driscoll, I fear, does not fully appreciate my position regarding edentulous or partially edentulous jaws. Nor could he well do so from the short and imperfect extract given in the *Transactions of the World's Columbian Dental Congress* from which the *Digest* copied.

What I attempted to say, and in substance did say at the close of the reading of Dr. J. M. Whitney's very interesting paper, was, that Dr. Harrison Allen, of Philadelphia, had demonstrated some peculiarities of the edentulous upper and lower jaws of the human subject on the exhibition of fourteen skulls of different nationalities. He held that the statement made that the jaws exhibit the result of uniform absorption of the alveolar processes was not true. The bone tissue which held the teeth in place being a complementary structure is indeed rapidly absorbed after the teeth are lost. But when the alveolar processes have disappeared, a secondary process of adaptive hyperostosis takes place. These statements relate in the main to the upper jaw, but the conclusions can be applied also to the lower jaw. This adaptive process occurs in three regions, namely, that for the incisor teeth, that for the canine tooth and the first bicuspid tooth, and that for the second bicuspid tooth and the molar teeth. These regions answer roughly to those occupied by various kinds of teeth, and differ in much the same way as the incisiform, caniniform and molariform teeth differ from one another. The region of the incisor teeth is compressed and beaked, that of the canine tooth and the first bicuspid tooth is coarsely conical or tubercular, while that of the second bicuspid and molar teeth is either broad and massive, or compressed. It is a rare thing to find an edentulous dental arch uniformly hyperostosed or uniformly atrophied, but one or more of the regions above named assume the form described, or at least exhibit indications of changes different in character from the mere loss of the alveolar processes. The lower jaw passes up

in front of the upper jaw in aged individuals who have lost teeth. As a result, the attrition of the incisorial region of the lower jaw is secured against the *front* of the upper jaw. The result attained by such attrition Dr. Allen called "shearing." Shearing takes place in proportion as the upper jaw at its anterior arc is beaked. It is interesting to find that when "shearing" is present the articular surface of the condyloid process is invariably at the anterior part.

Several of the skulls upon the table, which had with such care been arranged and described by Dr. Whitney, fully illustrated and confirmed the statement of Dr. Allen. In a number redevelopment of the process in the incisorial region where the teeth had long been lost was very conspicuous—while in some in other localities where the opposing teeth had maintained their position, there was also evidence of redevelopment. But crania collected from civilized communities in the future will show less irregularity in the edentulous jaws than is shown by the skulls upon the table indicated. In many the symmetry of the ridge will in a great measure be due to the uniformity of pressure from an artificial denture, and an absence of forces which would, without the protection of the denture, have a tendency to stimulate redevelopment, and in some cases doubtless be successful.

I would simply remind our friend, Dr. Driscoll, that in both cases the skulls examined were of very ancient date, and that the diet which had doubtless been essential to the individual, differed very widely from that in which civilized races indulge at the present day.

Yours truly,

C. N. PEIRCE.

LETTER FROM NEW YORK.

NEW YORK, April, 1895.

MR. EDITOR:—Not a little marvel was created at the announcement in the *Review* of March that Dr. Harlan was "in the harness again." No one could be anything but glad for the *Review*, but then, about the *DIGEST*. Well the *DIGEST* is young and doubtless full of blood and has its reputation to make, so on all hands it is conceded that the man who carried through the Crown litigation

so far, and showed so much pluck against the Bridge, will push things ultimately to a success. If so in a professional way, as is being shown in the leading article of the *DIGEST*, there is a good prospect in other projects. "Nothing risked, nothing gained." It is no small thing to move out in the face of so much established business in dental commerce.

There is a general cry in this line in New York that our trade is very dull, so it has been in general regarding dental practice for the last year, and yet we heard of one practitioner to-day for whom the last year had done better than any year before. However, some practitioners are always busy. This is accounted for sometimes by methods of conducting a practice. There seems to be more peculiar associations allied to the financial part than to any other calling. Many will look forward to the line of teaching that is promised in the *DIGEST*—regarding the education of patients that have not been accustomed to liberal fees, and while it may not apply to all persons and places, yet we think it may be assumed that it will apply on general principles. Teaching on this line has been very meager.

We have omitted an important feature brought into operation at the two last all-day clinics under the auspices of the First District Society, viz: placing a number both on the program against the name of the operator and at the chair of his exhibit, by this means ready information was given who and what was to be seen. Dr. Smith was the originator of this plan, he being one of the clinical committee. The plan was recommended very favorably and it will prove a decided help to other clinical exhibitors. The present administration of the First District Society has shown first-class ability throughout and it will not be a surprise if it is given a second term, and yet the ways of politics are various. It has been intimated that the Society thinks of taking new heart—they have got it, and we don't think they will take on (heart) failure which is so common these days.

April is the month of the annual election, May the State association meets at Albany, and the month of June gets so hot it is possible that little more will be done by this body until Autumn. The O. S. will go actively on for two months more as things look. This body has the biggest kind of executive ability this year—we look for interesting bills at every session.

Dr. Case was a very drawing card and every moment was interestingly occupied. We noticed a decided change in the personal; he has got a good tailor—good clothes do help one out. Dentists of all men should dress well and in good taste. The late Dr. Byron E. Coy of Baltimore, who was an emperor in his practice, once told us while an associate with him, that he had never allowed anyone to dress better than he did. He was an impressive and good looking man. We saw a gentleman present at the last meeting of the Odontological and he reminded us much of Dr. Coy, although somewhat taller; he has got a good tailor also. He is a person that is noticed always for his personal appearance. Dr. Daboll has made an enviable position among the American dentists of Paris. We think his blood was drawn to his stomach like Dr. Guilford's. W. W. W. knows how to fill men's stomachs, it is far easier to bring them into your line of thinking and talking, yet we think grey matter works better with an empty stomach, then after labor, refreshments.

Dr. S. G. Perry brought out at this meeting under the head of new things, some improvements he claimed of hot and compressed air instruments. The doctor is prolific in nice auxiliaries in practice. He must spend a snug sum in these things, well he has got it, and it is doubtless his pleasure.

Rumor says that the Hornets are getting on a fly for something extensive at Asbury Park in August. If they could bring on one of caterer Davis' \$1.00 menus it would astonish good eaters, they are equal to most of New York's \$5.00 ones, and then, how nice the Hornets look in swallow-tails, for they have almost all got them. They did not do these things when we first knew them 20 years ago. They have good tailors also, and many of them have a good practice and have become better practitioners, of course this ought to be so, it is the object of associations.

Dr. Haskel, 70 years old, and a practitioner in New York for many years, died in March leaving nine children—but all provided for, the Doctor was well fixed in finance. Dr. Mason, 43 years of age, died, leaving a wife; his demise was sudden and caused by apoplexy; he was a graduate of the Harvard School, and was a quiet, modest, pleasant gentleman. He has a brother practicing dentistry in Boston—they were born in Maine. Dr. Mason's first practice was at Dr. C. D. Cook's office in Brooklyn.

after a few years he came to New York and acquired a good practice.

Dr. Jared Hurlbut of Springfield, Mass., whom many Western men know pleasantly, has been seriously sick with kidney trouble for some time, he is one of five brothers, all dentists, three of whom have died.

The first of May is moving time in New York, but so far we have heard of little change among dentists. M. A. G.

THE CROWNING OF DECIDUOUS TEETH.

CHICAGO, ILL., April, 1895.

To the Editor of the Dental Digest:

DEAR SIR:—Under the head of "A Novel Dental Operation," you quote from "Hints and Queries," in *Dental Cosmos* of August, '94, in which Dr. W. H. Baldwin calls attention to the crowning of deciduous teeth with gold. In 1889, when my youngest son was but 2½ years old, his centrals and laterals were so much decayed that it was an impossibility to fill them with any substance that would be protective in its nature. The idea occurred to me to crown them with gold, which I did very easily and the child wore them in comfort until the permanent incisors appeared. I have since in many cases used the same method and find it very serviceable, although not very artistic. Yours truly,

WM. G. CUMMINS.

Gold Mine in Cemeteries.—A writer in *Le Temps*, of Paris, has been traveling in America, and of course relates his "impressions." What struck him particularly was not the falls of Niagara, the inquisitiveness of reporters, or the consumption of pie; but the fillings in American teeth. He has consulted the statisticians, and finds that the amount of gold annually pounded into our dental cavities reaches the respectable figure of eight hundred kilograms, representing a value of half a million dollars. All this precious metal is buried with the Yankees when they die, and consequently at the end of three short centuries the cemeteries of the United States will contain gold to the value of \$150,000,000. He thinks this will prove too tempting to the practical mind of the future American, and foresees the day when companies will be organized to mine the cemeteries and recover the gold secreted in the jaws of deceased ancestors.—*Ex.*

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

IS IT AN UNLAWFUL COMBINATION ?

In our editorial in the March number of THE DIGEST, which was a reply to an editorial in the February *Cosmos*, we said in substance that before Dr. Kirk became editor of the *Cosmos* nearly all the large dental supply houses entered into a trust; that a dental trust was certainly not organized in the interests of the profession; that, of course, no criticism could be looked for from the journals controlled by the combination, but we thought there were a few journals which would have taken the side of the dentist against this unlawful combination, but if they had done so, the advertisements from the trust would have been withdrawn. We also said that there was a vast difference between a Dental Protective Supply Company, composed of dentists, organized on a co-operative basis for mutual benefit, and in no violation of the law, and a combination or trust, forced to keep the prices up, and so tax the profession.

The reply to this part of our editorial was referred to Mr. Lewis, president of the S. S. White Dental Manufacturing Company. This gentleman accuses us of "attempting to raise the dead by publishing anew that which was shown to be false years ago." The question we raise in this connection is, did they prove the accusations to be false? We have not the article at hand referred to by Mr. Lewis, but from the part that he quotes he shows clearly that some of these regulations are in direct violation of the decisions of the courts. Furthermore, if we are not misinformed, some rules adopted more recently are in still further and greater violation of court decisions, and are such as to have a very decided trust complexion. We may be mistaken

about such rules as mentioned being adopted, but we have such evidence in our possession as would be sufficient to prove our position unless other evidence can be shown to the contrary. Will our friend, Mr. Lewis, make public all the rules of the American Dental Trade Association?

We remember seeing a lengthy communication signed by the then president and secretary of the A. D. T. Ass'n., which was sent to the dental profession during the first year of the Association's existence, and which must have been designed to allay or prevent adverse criticism. Both this and the article referred to by Mr. Lewis were looked upon by those who took the trouble to read and think about them, as mere subterfuges. And dentists generally consider it absurd for the A. D. T. Ass'n. to attempt to convince them that such an organization was formed for the protection and benefit of the dental profession; they do not question but that this Association, with the additional rules since adopted, was organized to prevent competition, which might lead to a reduction in the price of articles a dentist buys. The opinion often expressed by the profession is to the effect that they have been liberal patrons of these manufacturers who have gone into the trust, and their patronage has afforded large profits; that out of such patronage the supply houses have been able to build expensive factories and buildings, notwithstanding that they have indulged in extravagant methods of doing business; that they (the manufacturers, not the dentists) have grown rich out of the surplus profits, and that it was unfair to the profession for them to have formed such a combination. Therefore, we can assure the members of the A. D. T. Ass'n. that the profession is not dead, but sleeping.

Going back to the explanation referred to by Mr. Lewis, which states in substance that not a single article has advanced in price by reason of this Association, he probably does not include teeth under the head of a 'single article,' but we feel sure that the price did advance from ten to fifteen cents after its organization. It is true that there have been reductions, but they have been forced by outside causes. The drop in the price of teeth from fifteen to twelve cents, just at the time when we were arranging to import the best teeth in the world, would probably be a way to account for this reduction.

ARE THE DENTAL JOURNALS PUBLISHED IN THE INTEREST OF THE PROFESSION?

In the reply of Dr. Kirk, editor of the *Cosmos*, and Mr. Lewis, president of the S. S. White Dental Manufacturing Company, to our editorial in the *DIGEST* for March, our first proposition is entirely ignored.

This proposition was, in substance, that the work of organizing the Dental Protective Association did not receive the aid and encouragement from the dental journals published in this country that the merits of the movement deserved; and that, if these journals were, as they claimed, "conducted to meet the needs of the dental profession," the Protective Association certainly came under this head.

We have shown at various times both in print and by word of mouth what the Association was doing, and how it had already relieved the profession of great hardships and abuse; and we challenge anyone to show a movement which has done so much good in the same length of time with so little expense and trouble to its members and none to the body of dentists at large as has been accomplished by this organization; or, we will go further, and ask what other organization has even afforded or resulted in any protection to the profession?

If our claims heretofore and now made are correct, and we wish to have our statements refuted if they are not correct, we again say can any one show why the journals which claim to represent the dental profession and to have its best interests at heart, should not help band the profession together, by urging all dentists to join the Dental Protective Association of the United States,

It is true that since Dr. Kirk has been allied with S. S. White Dental Manufacturing Company to the extent of being employed as editor of their journal, he has not been approached or solicited to aid the work of the Dental Protective Supply Company. We need not explain that we knew full well it was beyond Dr. Kirk's power to use the pages of the *Cosmos* to aid us in this corporation; but he must know that the Dental Protective Supply Company is entirely distinct from the Dental Protective Association and that the funds of the latter can be used only to remedy patient abuses, the greatest evils that have ever afflicted us as a pro-

fession. This being the case can he give us any reason why the *Cosmos* should not further in every possible way the interests of such an Association, if that journal is published as claimed, in the interest of the profession?

DOES THE DENTAL PROFESSION NEED CO-OPERATION?

It is needless for us to answer this question in words. The work of the Dental Protective Association is a good illustration of what can be done in the way of co-operation, and we feel quite sure that in the Supply Company a much more extensive success can be accomplished. What is now retarding this movement is mostly indifference and dependence on the part of individual members of our profession. As to whether this plan of doing business is a success or not, we quote in this connection from an article on "Co-operation," by N. O. Nelson, in the *Outlook* of April 27th, 1895:

"Business co-operation is a rising industrial factor that deserves to be better understood in this country. It is sometimes confused with profit-sharing, from which it differs in essential principle. The latter is a division of profits between an employer and his hired men. The system is an excellent intermediate step between the regular wages system and co-operative self-employment. It brings employer and employed closer together. It gives some additional incentive to work, and it yields some addition to workingmen's income. * * * Co-operation stands on very different ground. Here men must depend on themselves; they must sink self; they must work out their own salvation. The difficulties in the way of co-operation are indifference and lazy dependence. Any body of men who are willing to lay up a few dollars, pay cash, and stand together, can start a co-operative store. Any set can start a factory if they will lay by a dollar or two a week for one or two years. In either case they need some good sense, some determination, and a desire to help others while helping themselves. Co-operation at its best embraces religion as well as business. Every co-operator should recognize duty fully as much as rights. The social evils of the competitive system should compel him to join in bet-

tering the feeling as well as the condition of his class. He should understand his duty, the religion of brotherhood. But until he can unlearn the lessons of a lifetime he does well if more regular work and larger income persuade him to join with others on equal terms, and adopt democracy in business no less than in politics. Reflection will tell him that common men can better select capable managers for a business which they understand than for public affairs which they do not understand. He can see that, in the aggregate, great profits are made in business, and that moderate expenses and greater pains in working will offset any superiority of managing skill possessed by private proprietors.

"Co-operation has already passed beyond the experimental stage. In Great Britain alone it now handles a business of over two hundred and fifty millions of dollars a year, from which a profit of over twenty-five millions is returned on purchases, besides paying five per cent. interest on capital and accumulating a surplus. There are nearly two thousand retail associations, of which many have several branches. Some of the societies have as high as thirty thousand members. This whole system has grown from a little club of twenty-eight very poor workmen who joined together just fifty years ago to buy their tea and flour at wholesale, for cash, and deal it out to themselves at the ordinary retail prices, for cash. That pioneer society now has twelve thousand members and nearly two millions capital. Two principles were adopted and rigidly adhered to—cash payments and full market prices. These seem small matters, but they are in fact far-reaching. For cash they can buy at the lowest value, and for cash they can sell without loss of the bad debts and with less account-keeping. They cannot become insolvent, and they know all the time just how business is going. By charging the full market price, and incurring only the necessary expenses for distributing the goods, they accumulate a profit-fund. This profit is made up in large part of what in private business goes in advertising, expensive premises, bad debts, and the disproportion between fixed expenses and business done. Those who know something of business will recognize that these items amount to a large percentage on sales and form a constant danger to capital itself. The customer and the proprietor being the same person, the customer reverses the usual order and seeks the store. Dividends

being upon purchases and not upon capital, the member has the strongest possible incentive to do all his trading at the store.

"In the United States co-operation is far behind England and France. Spasmodic movements have been inaugurated, but they have stranded on the rocks of credit or politics or low prices. The discoveries in business principles which the English workmen co-operators may be credited with making, namely, cash dealings, market prices, dividends on purchases, and an ever-accumulating surplus—have been overlooked or ignored by the American wage earner, who feels no need of small economies when wages are high and work abundant, and who has nothing to spare for a business venture, when bad times leave him stranded. The plan looks puny and prosy to open handed Americans who do not understand its principles and its possibilities. But the start has been made. Genuine co-operative stores are to be found in every part of the union. Most of them are young and small, but there are some with membership numbering from one to two thousand, and sales as high as \$250,000 a year.

"A federation for propagandism is greatly needed, and should be formed. A co-operative society does but a small part of its duty if it ignores the educational and the moral opportunities that lie at its door. In England, Germany, France, and Italy co-operation and profit-sharing command the active sympathy and approval of the leaders of thought and reform. The public men, the preachers, and the influential journals of this country will not fail to give their encouragement whenever the American workingman shows the disposition and the ability to organize co-operative stores and factories on the right principles. The difficulties to be encountered are not so much the business itself as the people's indifference. Where as many as fifty can be gotten together and imbued with the proper spirit a safe start can be made. Care should be taken to keep the expenses so proportioned to the business that a fair net profit will be made from the start. Purchases and sales should be rigidly cash, and prices should be the same as at the neighboring stores. Every one of the fifty should be a missionary to explain the plan to his friends and get them to join. Members should loyally do all their trading at the store, even at some inconvenience. Undertaken in this way, a co-operative store can be started anywhere and be assured of success."

In another editorial we discuss the dissatisfaction which is almost universal among those of the dental profession who are alive to the situation, and understand the methods of those who furnish the dental supplies for the profession. We intend discussing this question in its various phases at greater length than time or space will at present permit. In the meantime we solicit investigation of our plans; correspondence on the subject will receive due consideration and an early reply.

MEETING OF THE AMERICAN DENTAL ASSOCIATION.

We wish again to call your attention to the meeting of the American Dental Association, at Asbury Park, New Jersey, the second Tuesday in August. Also to urge all societies to send delegates. Each society is entitled to one delegate for every five members. Delegates must have certificates signed by the president and secretary of their respective societies.

It is desirable that local societies forward material or a condensed report of the important literary work done during the year. Such reports should be forwarded to whichever section they belong. Large delegations are always desirable, and the literary work of each society should be well reproduced.

A notice giving full details of the railroad arrangements, etc., will be published in the next issue.

J. N. CROUSE,
Chairman Executive Committee.

Notices.

COLORADO STATE BOARD OF DENTAL EXAMINERS.

The Colorado State Board of Dental Examiners will meet in Denver, June 18-20, 1895, at the I. O. O. F. hall. D. MURRAY, Sec'y., Greeley, Colo.

SOUTH DAKOTA STATE DENTAL SOCIETY.

The meeting of this society has been postponed one year, meeting June 5-6-7, 1896.

DR. R. F. MERRICK, Secretary,
Sioux Falls.

WISCONSIN STATE DENTAL SOCIETY.

The twenty-fifth annual meeting of the Wisconsin State Dental Society will be held at Madison, July 16-17-18, 1895. Every effort is being made to celebrate the 25th birthday, and the profession are cordially invited to attend.

DR. CLAUDE A. SOUTHWELL, Secretary.
331 Reed St., Milwaukee

MISSOURI STATE DENTAL ASSOCIATION.

The thirty-first annual meeting of the Missouri State Dental Association will be held at Pertle Springs, July 9-12, 1895. All dentists in Missouri are especially invited to attend and a cordial invitation is extended to those of other states. It is expected that this will be one of the most interesting meetings in the history of the Association.

W. M. CARTER, Cor. Sec'y.
Sedalia, Mo.

ODONTOLOGICAL SOCIETY OF PENNSYLVANIA.

The annual meeting was held May 11, 1895. The past year has been the most prosperous in the history of the society. The following officers were elected: James Truman, president; C. R. Jeffries, vice-president; W. A. Deane, recording secretary; I. N. Bromell, corresponding secretary; J. H. Gaskill, treasurer; J. D. Thomas, librarian; Jos. Head, editor; F. L. Bassett, Mary Stillwell, C. N. Peirce, executive committee.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The next meeting will be held in the parlors of the "Hotel Columbia," Asbury Park, N. J., on Monday, August 5th, at 10 A. M., and at other times as becomes necessary between the sessions of the American Dental Association. It is important that every State Board be represented. Applications from Boards not in membership will receive immediate attention.

CHAS. A. MEEKER, D. D. S., Secretary.
29 Fulton St., Newark, N. J.

MASSACHUSETTS DENTAL SOCIETY.

The Thirtieth Annual Meeting of the Massachusetts Dental Society will be held in Boston, at the Rooms of the Harvard Dental School, beginning on Wednesday, June 5, at two o'clock P. M., and continuing through Thursday, June

6. *Mark these dates off your appointment book now*, and plan to be with us. The annual dinner will be at Young's Hotel, at six o'clock on Wednesday; tickets \$1.50 a plate; ladies invited. There will be a number of interesting clinics and exhibits, which will well repay your attention. The Councillors will meet promptly at the same place at 9.30 Wednesday A. M., to transact the business of the Society, so that the entire time of the Society may be given to papers, discussions, etc.

JOS. KING KNIGHT, President.

EDGAR O. KINSMAN, Secretary.

TRI-STATE MEETING.

The Russell House, Detroit, which will be Headquarters for the Tri-State meeting to be held June 18-19-20, has made a rate of \$2.50-\$3.00 per day, according to location of room. The Hotel Normandie, an excellent house, just one block from the Russell, has made a rate of \$2.00-\$2.50, according to room. Dr. W. C. Barrett, of Buffalo, will give a lantern lecture one evening during the meeting. Dr. Barrett has all of Prof. Miller's (of Berlin) bacteriological slides and those of Andrews on enamel formation. Dr. Hollingsworth, of Kansas City, will be present to demonstrate his system of crown and bridge-work. Railroad rates will be announced in the June numbers of the dental journals.

G. E. HUNT, Secretary.

NEW JERSEY STATE DENTAL SOCIETY.

The twenty-fifth annual meeting (The Silver Anniversary), of the New Jersey State Dental Society will be held in the "Auditorium," Asbury Park, commencing Thursday, August 1st, at 10 A. M., and continuing through Friday, Saturday and Monday A. M., closing in time for the meeting of the American Dental Association commencing Tuesday, August 6th at 10 A. M.

The "Auditorium" is an ideal place for holding a summer dental meeting, being situated in the middle of a block fronting the surf, with large windows opening from every side in one continuous row, thirty large windows with north light for clinics and 390 by 25 feet for exhibits.

A branch of the Asbury Park Post-office will be established in the "Auditorium" and a bureau for general information with attendants constantly on hand.

The New Jersey headquarters will be the "Hotel Columbia" with rates from 2.50 to 3.00 per day. Several large hotels have made contracts from 2.50 to 4.00 per day, and smaller hotels from 8.00 to 12.00 per week.

Full particulars and rates, with map of Asbury Park and a plan of the "Auditorium" will appear in program.

CHAS. A. MEEKER, D. D. S., Secretary.

29 Fulton St., Newark, N. J.

Obituary.

DR. H. H. FITCH.

Henry Howard Fitch, D. D. S., died at his home at Pekin, Ill., May 2nd, 1895, of rheumatism of the heart. He had an attack some weeks before, from which he recovered and was considered out of danger, but he suffered a relapse and died very suddenly.

Dr. Fitch was born April 10, 1846, at Mooers, New York; when he was two years old his parents moved to Thetford, Vermont, where he began his education; in 1867 he entered Dartmouth College, from which he graduated.

He began the practice of dentistry in Lisbon, N. H., and in 1876 moved to Pekin, where he remained until his death.

In 1871, in Lee, Mass., he married Mrs. Mary L. Beach, who, with two daughters, survives him.

News Summary.

A Definition of Influenza.—A clergyman defines *la grippe* as "A cold possessed of the devil."

Manifold Pregnancy.—According to G. Veit, there occurs among about 90 births one case of twins, and among 8,000 one case of triplets.—*Med. Review.*

Indigestion.—Doctor Griffith recommends:

R Oil cloves, 2 to 3 minims.

Dilute hydrochloric acid, 15 minims.

Tincture of nux vomica, 20 minims.

Compound tincture cardamoms, 2 drachms.

At one dose, three times daily, before meals.—*Philadelphia Polyclinic.*

ANKYLOSIS OF THE JAW.—Mr. E. N. Nason, of Nuneaton, has narrated in *The Lancet* the case of a man who, some ten years before coming under notice, received some ill-defined injury to the right side of the face. Two years and a half later, movement of the jaw became restricted, and two years later the mandible became completely fixed, so that the teeth could not be separated. The man was nearly starved, so the following operation was performed: Half an inch below the zygoma an incision was made down to the bone along the posterior border of the ramus to the angle. Bony and fibrous thickening was found round the condyle. Having cleared the ramus a wedge-shaped piece, with a base posteriorly of half an inch, was removed by means of a key-hole saw and cutting pliers. The inferior dental artery gave no trouble, and the patient made a good recovery. He began to masticate with very little pain on the third day, and a space between the teeth of seven-eighths of an inch had given no sign of lessening a year later.

The Dental Digest.

Vol. I.

CHICAGO, JUNE, 1895.

No. 6.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

BY J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 261, No. 5, Vol. I.]

As there is probably no part of a dental practice more difficult or more vexatious and harassing, especially to a young practitioner, than the question of fees, or how to obtain just compensation for services rendered, we venture to give a few more suggestions as the result of our experience upon this point.

If we pause to think for a moment how comparatively new our profession is, how short a time has elapsed since we were known as "tooth-carpenters," and how rapidly we have evolved from an insignificant trade into a highly respected profession, we will see why there is such dense ignorance in regard to our profession, both as to the work itself and the compensation which should be paid; therefore, it is not enough that a dentist should have mastered the technical part of his profession, but every dentist must be an educator as well.

It is said that all things have their time and place, but this educating of a patient needs to claim pretty much all times for its own. It must be done at the outset, as the work progresses, and may perhaps not be fully accomplished until the work is finished and the bill rendered, when parting words of explanation may be needed. We are confident, however, that the secret of success in avoiding trouble in this direction is preparation in advance of the work. A marked case of unpleasantness from lack of this in our earlier experience comes to mind as we write. There appeared in our office some years since two handsomely dressed

young women who said that they came upon recommendation of their uncle, a wealthy man who had been our patient for many years. Under the circumstances we neglected our usual precaution to send for the father or mother for consultation as to expense. The work was found difficult; the teeth were very close together; there were many cavities on the approximal surfaces near the cervical margins; this necessitated much wedging to avoid cutting away of the solid tooth substance, and the teeth were exceedingly sensitive. With these conditions an enormous amount of time, painstaking effort and nervous force on our part were expended, so in consequence the bill was large. We had seen neither of the parents while the work was being performed nor had the daughters made any inquiries concerning fees. Upon finishing the work the bill was rendered, to the dismay of the father and the astonishment of the daughters. Evidently their education along this line had been neglected. The father was a rich, thrifty German in business partnership with the uncle who had recommended the family to come to us, and he did not hesitate to spend money where he had something to show for the money expended. In the midst of a difficult operation one day, soon after sending the bill, the door-bell rang violently and our presence was demanded. We excused ourselves from the patient for a moment, and found in the reception room a large, finely-dressed, irate German pacing up and down and fairly foaming at the mouth with rage. When we entered the following dialogue took place: "Are you Dr. Crouse?" "Yes, I am Dr. Crouse." "I got a bill, I don't understand it!" "Would you like to see the items?" "No, I do not care anything at all about it. It is impossible that you could have such a bill. It is a swindle." We tried to explain the difficult nature of the work, the time consumed, etc., to all of which he would not listen, but only walked back and forth repeating "It is impossible, impossible that you could have done so much work. *I cannot see any of it.*" We replied, "I did not put it there for you to see." Again in broken English, he burst forth, "It is a swindle and I will not pay the bill." Finding that he was as unreasonable in his anger as a mad bull, we changed tactics and replied, "You did not leave your business and come five miles across the city to tell me that, did you? You could have told me that on a postal and saved a part

of your car fare." Buttoning and unbuttoning his coat and wildly gesticulating, he continued, "But I will not pay the bill, a swindle, a swindle, what will you do about it?" We replied, "I am going to do nothing until you cool down and become a rational being." "Oh, oh," he said, "my brother-in-law should never have sent me to such a place." Seeing that it was useless to attempt to reason with him, we finally said, "My patient is waiting and I will bid you good day," and returned to the office. Surprised at this turn of affairs, he soon left. We continued to send the bill regularly every month, but it probably would never have been paid without a lawsuit but for the brother-in-law who came to see us. We explained the case to him, showed him the charges and diagrams of the work, all of which were perfectly satisfactory, and he told the father that if he did not pay the bill he should pay it for him, and so the father concluded to pay it. We have never seen the man since, but he doubtless thinks to this day that he was badly swindled, whereas the bill rendered was a very reasonable one. I have little doubt but that, had we sent for the man and explained the case to him beforehand all trouble might have been avoided and the family retained as patients, but when the idea had once entered his mind that he had been swindled, it could not be dislodged. There is one consolation, however, he is prepared for the next dentist's bill he may have to pay.

We recall another instance which happened in former years.—A very large amount of work had been done for several children in a family and the bill amounted to something over \$1100. The father was surprised, but being a just and reasonable man, upon ascertaining the facts, he was satisfied, paid the bill promptly, and the family remained loyal patients and firm friends.

We consider the latter case a species of good luck in that we had a rational man to deal with, but a long experience has taught us that it is wiser to ascertain whether or not a patient is informed as to dental fees, and if not, to give him some idea as to expense, although you cannot always or perhaps often name a definite sum before the work is performed.

We have said that this tutoring of our patients must go forward in season and out of season until the public are better informed as to compensation for dental services. While the work is being performed, there are innumerable occasions for dropping

a word here and a word there without seeming to dwell on the subject. Your early morning patient arrives perhaps before you have finished the mail. One or more checks have arrived; what is more natural than to mention how much easier the work goes and how much more enthusiasm the dentist has in his work when remittances are prompt and accompanied by words of appreciation of services. Or perhaps your lady patient tells you of some friend who has left her dentist on account of his charges. What is easier than to say that no charges are exorbitant if the work is well done. Here is a chance to say a word for your brother practitioner, and in helping him you help all dentists.

But perhaps there is no time or condition so favorable for talk upon this subject of fees as when the work is just completed. If there is any time in the world when a man feels good, and thoroughly satisfied with himself and with the world at large, it is when he has had a great deal of dentistry done, has suffered all sorts of torture, and feels that it is all over at last and that he is the happy possessor of a perfect masticating apparatus. With what interest and pride he inspects the work in the mirror. It is a moment of supreme satisfaction. If any further educating as to the skill which can give him such results is needed, now is your opportunity. It is quite common for a patient to say, "Now, Doctor, make the bill as low as you can." We reply, "Why don't you say, charge me well, you have done your work so well?"

Another point which has been invaluable to us in the matter of fees is the way in which a bill is rendered. We found itemized bills very unsatisfactory years ago, as a patient cannot understand a bill of items in dentistry as he can in dry goods; hence we abandoned rendering them and substituted the following plan which has proved most satisfactory. Upon completing the work, if much has been done, we say, "Now I don't want to take the trouble to render you an itemized bill which you would know nothing about when you got it, but here is our book showing upon the diagram just what has been done, and here is the charge for each sitting, look it over." Then turning to our assistant we request her to make out the bill from the date when the work was begun to the date of completion, including number of sittings. If any questions arise they can be explained here and now. We consider this plan one of the best we have ever adopted as it

avoids all future discussion of the bill, and is far preferable to the rendering of an itemized bill or one giving simply the amount without items.

We have discussed the question of how to obtain a just compensation for dental work, taking it for granted that we are talking to a class of young practitioners who have too much integrity to charge for services which have no value; and who respect themselves too much to take advantage of a patient's lack of knowledge of dental fees and overcharge. In no way is influence gained or lost more rapidly than by conscientiousness or the lack of it in work and charges.

One other suggestion we wish to emphasize, viz., the importance of well kept books. Any hints upon this may seem superfluous, but we have reason to believe from our experiences in taking testimony for the Dental Protective Association for the past eight years, that there is perhaps no duty of a dentist more generally overlooked. Indeed we found it the rare exception where a man has been able to tell us from his books when certain work was performed and just what was done. We owe it to ourselves and to our patients that the record of past work shall not be trusted to memory, and that we are able to show a patient at any time a carefully itemized account in connection with a diagram of all work we have ever done for him.

One last thought for the dentist's consideration. The satisfaction which the patient feels upon completion of his work is as nothing compared to the feelings of the operator when he has a bank account. To obtain good fees is one thing—to keep them is quite another. Why are we looked upon as a profession of ready money makers and at the same time as impecunious? Simply because we make our money and spend it. Never having any in reserve compels us to pay the highest prices for all we buy instead of taking advantage of our opportunities. We fear that no argument of ours as to increased self-respect, respect for others, convenience or economy would avail to induce even one young practitioner to open a bank account; so in place of argument we ask all young practitioners just to try it. No matter how small the beginning, make a start and the account will grow, and once having such a reserve, you will never be content to be without it.

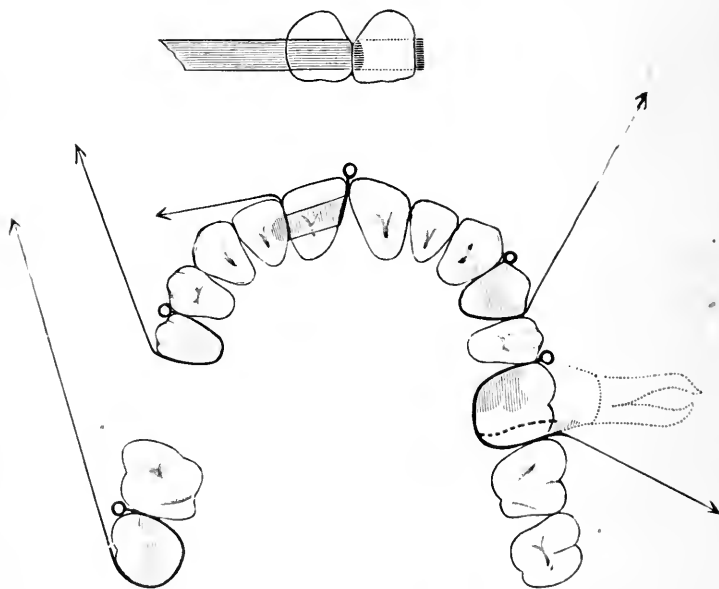
(TO BE CONTINUED).

GERMAN SILVER MATRICES.

BY G. A. BRONSON, D. D. S., ST. LOUIS, MO.

The accompanying cut illustrates the great assistance to be derived from a German silver strip matrix in filling all proximal cavities in either jaw, presenting on the buccal, lingual, or grinding surfaces, from the wisdom tooth on one side to the corresponding tooth on the opposite side.

A piece of German silver is rolled to No. 36 gauge, and cut in strips averaging 3-16 wide and six inches in length. The end intended for the teeth is rolled upon itself to a coil of 1-16 inch in diameter, and the other end to a coil of 3-16 to hold on by, or what is still better, soldered to a ring to slip the finger in. Both coils should be filled with soft solder.



This form of matrix is especially useful for a number of difficult cases, where the older forms were lacking, such as the disto-lingual surface of a wisdom tooth, a proximal cavity where the adjoining tooth is lacking, etc. It is most useful for all plastic fillings, but at times comes in very well in operating with gold.

It is quickly adjusted and removed, and owing to its extreme flexibility, its removal is less liable to disturb a new made plastic filling than the ordinary form of matrices. The end with the large coil or ring is held taut by the operator or assistant.

Beginning with the right wisdom tooth, the cut shows a disto-palatine cavity for which the strip matrix can be adjusted in less time than it would take to only measure the tooth for a band to be soldered and adjusted, besides leaving no band to be cut open after the filling is inserted. The third molar also shows a simple anterior proximal cavity. The second right bicuspid shows the method of restoring palatine cusp; if the buccal cusp were missing it would be equally useful. The lateral shows a cavity opening on the palatine surface and not involving the buccal to any extent.

The small cut illustrates a cavity opening on the buccal surface, and on removing the strip a sufficient space will be left to finish the cavity with strips. The strip as adjusted to left first bicuspid illustrates its use for three fillings in one operation, and were the second bicuspid missing, a difficult position for adjustment of the ordinary matrix, its usefulness would not be impaired in the least. The first molar shows two cavities very difficult of adjustment for the ordinary matrix, especially the large distal cavity, not involving the grinding surface but presenting on both the palatine and buccal surfaces. When the opening on the palatine surface is larger than on the buccal, the strip is reversed and the filling inserted from the palatine side.

THE ADMINISTRATION OF GAS.

By W. H. DUDDY, D. D. S., BOSTON, MASS.

The April number of the Dental and Surgical Microcosm contains an opinion relative to laughing gas, advanced by H. Squibb, in which he declares that any one who administers gas to a patient, without requiring a certificate from the "patient's medical adviser," stating that the patient is in a fit condition to inhale the gas with impunity, should be responsible for the life of the patient, and held accountable by law. If that were the case, who would certify to the fitness of the physician giving the certificate?

I think it would be a much easier matter for the dentist to ascertain by a few dexterous questions put directly to the patient, whether or not it would be safe to administer the gas, and after the questioning, if any doubt existed as to the advisability of administration, such doubt could be promptly settled after a few inhalations.

It is quite obvious that H. Squibb draws his conclusion from the standpoint of a theorist, rather than from that of a practical dentist, for were it otherwise, he would know the insurmountable obstacles placed in the way of the dentist upon the mere mention to the patient of a certificate being required. At that time many individuals are likely to look upon the dentist with loathing and fear; if he even intimates that there is the remotest possibility of anything being wrong with their systems, other than palpitation of the heart, and even this is sufficient proof to almost all women that the organ has ceased to properly perform its function, and if an anæsthetic should be administered death would surely ensue. It must not be forgotten that one great advantage accrues to the benefit of the dentist, namely, that all of his patients are able to walk into his office, consequently it is evident that they are not confined to their beds. This fact of itself is of very great assistance in enabling the dentist to determine if it is necessary to question the patient at all. In most cases it is really unnecessary. Furthermore, it seems to me that with the education which dentists are supposed to possess after graduation, and with the "Board of Examiners" which should prove that their education is not lacking, all dentists should be just as competent as physicians to decide whether it is advisable to administer an anæsthetic or not; except in very extreme cases, when a thorough examination of some of the vital organs is demanded. Even then the dentist need not remain in doubt, because the patient has generally been under treatment in the past, and is sensible enough to make all necessary inquiries. I do not desire to criticise the gentleman, because I think his intentions are absolutely honest, but I do not think he is conversant with the difficulties which beset the dentist's path, especially in dealing with people when they are laboring under great excitement, and when "trifles light as air" are magnified a thousand fold.

In the same number, under the heading "Incongruity," rather

loose language is employed by Dr. M. W. Sparrow, when he says that he has had his "share of fun with fractious patients." It is beyond my power to conceive how anybody can have "fun" with a full knowledge of the responsibility of having a life in his charge. I must confess that after thirteen years of experience I have never administered an anæsthetic without feeling the most tremendous anxiety while giving it, and the most exultant relief after the whole affair was ended and consciousness regained. I do not think that I can ever be accused of being a novice, nevertheless I cannot view with any other feeling than alarm, the condition of some patients when under the influence of gas, when no power on earth is capable of defining the line of demarcation between life and death. A dentist who has administered "gas hundreds of times and never seen an alarming symptom," either does not know an alarming symptom, or else is oblivious to all symptoms and is intent only on getting the patient in a condition where his efforts of resistance are futile.

Perhaps a few suggestions regarding anæsthesia would not be out of place at the present time. In view of the many able articles that have been written, and the detailed accounts given of the methods of administering anæsthetics, it is somewhat surprising that so little has been said regarding the control of the patient by the operator. I contend that the manner in which he exerts his judgment over the patients in the form of tact, call it magnetism, hypnotism, mind over matter, what you will, has more to do with the successful completion of anæsthesia than the best anæsthetic that will ever be produced. No matter what virtues it may contain, it will never be able to overcome that terrible dread experienced by a large percentage of the people who are obliged involuntarily to lose consciousness. The most essential thing to be done is to relieve the rigidity of the mind, and with that end in view the dentist should exercise his faculties to their utmost and by his tact actually force a relaxation of the patient's nervous system. On his ability to do this largely depends his success as an operator in this particular sphere. The power to do this cannot be taught, it can be learned only by observation and a desire to inflict the least possible pain, whether it be physical or mental.

The control of the patient cannot be gained by any method of logical reasoning with the one concerned; it must be gained in

such an indirect manner that not even the dentist's assistant, although knowing his intentions, can divine the means employed.

TOAST, THE FACULTY.

Delivered at the American College Alumni Banquet, April 4, 1895.

By W. T. ECKLEY, M. D., CHICAGO.

LADIES AND GENTLEMEN:—Permit me to assure you of the great pleasure it gives me, gentlemen of the faculty, to address you here this evening under these most delightful circumstances, and on a topic too often almost entirely ignored on occasions of this kind, and by gentlemen of your high educational standing. Except perhaps it be the dinner itself, nothing gives me greater satisfaction than after-dinner speaking, and when to these we add a response to a toast, The Faculty, pleasure and satisfaction are fanned into a veritable flame of enthusiasm.

The toast, "The Faculty," on after-dinner scholastic occasions, is only the poetic embodiment of the prosy idea of the relation of superior to inferior. A natural, inherent, justifiable, courteous antagonism always obtains between superiors and inferiors of the same genus. This antagonism must be broken down, and the initiatory step in the breaking-down process must be made by the teacher—the while the egotism of the one and the altruism of the other must react on each other till a new compound results—one constant, enduring and ego-altruistic in a superlative degree.

I would invite your attention to the importance of personal acquaintance with the class. This I consider the *sine qua non* to success for a teacher of dental as well as medical students, regardless of sex. It has been my fortune the past year to guide the anatomical destiny of a thousand students in different institutions of learning in this city. This is a laborious task, but the labor is not in delivering lectures and preparing for demonstration, but in hunting up the registered pedigree of each student, and in making him feel that you are in earnest, and that he is the special point about which your interest centers.

I would call the attention of your honorable body to the mod-

ern method of teaching. Let dental and medical faculties remember they are *not* specialized in the direct line of teaching, but in the line of dental and medical practice. Let us then learn wisdom of those who *are* making the imparting of instruction a specialty. I refer to the educators in our public schools, of whom we so justly feel proud. The key-note of modern instruction is object-teaching, combined with the sentence-method. The time it took you and me to learn the alphabet under the "lickin and larnin" regime, now teaches our children twenty-six sentences, each a living and something-meaning entity in itself.

Again, let us differentiate between the kind of instruction necessary for children and that for adults. The teacher who assumes to instruct dental students after the infantile method, will as surely come to grief as will he who disciplines children after the adult plan. On the one hand we have to deal with anatomically developed brains, on the other with those in whom sensitivity, motivity and ideation are embryonic.

I would urge on faculties everywhere to insist on having *principles* and *generalization* taught rather than details, which latter so often figure conspicuously, both to the disgust of the student and to the depreciation of the teacher, in final examinations. State boards of examiners, dental and medical, give the tip in their practical and well-formulated lists, but we teachers, stupid men that we are, fail too often to make our questions practical, instinctively following in our methods the practice of the pedagogy of a half century ago.

Another point I wish to call to your notice is the Americanism "pluck." This is the first technical word the freshman learns; it is the by-word of the junior, and really the only thing in Chicago feared by the senior. In my humble opinion, if there was more plucking done in the faculty and less among the rank and file of the students, the world would be better off, educationally at least. My soul goes out to any student who voluntarily submits to a student's life in this great metropolis for long years, and this to me is *prima facie* evidence of his sincerity of purpose, and in equity, should entitle him to at least the leniency given even to criminals in every civilized country, viz., the benefit of the doubt. On the other hand, I have positively no use for the teacher who frames his opinion of the fitness of an individual for graduation on a final

written examination, the while having no personal acquaintance with his class. "Plucking" now has all the dignity and stately proportions of a system. Some schools strive to come into favor by the pluck record. This pernicious system ought to and will be throttled sooner or later, for sooner or later the legality of the custom will be challenged. If an individual must be plucked, let it be done along the line of legal and business principles. Plainly the relation of student to faculty is in the nature of a contract. The party of the first part agrees to issue a diploma at the end of a given time. The party of the second part agrees to devote a legal number of years and to pay a stipulated sum for instruction. Certainly the law can require no more of the student than it requires of the physician and dentist in medico-legal proceedings, viz., ordinary care and ordinary skill.

If the school accepts the student, takes his time and money, and at graduation time refuses to grant a diploma, here is plainly violation of contract on the part of the institution, and in ordinary affairs recompensable. What evidence has the student or the state of the qualification of the members of the faculty, as *instructors*? Positively none. Quite to the contrary. Each individual is known to be a specialist in some line of professional money-making. Remedy the evil then by requiring each teacher to present evidence of special qualification for *imparting instruction*, and you will have robbed the plucking system of all its ingloriousness and nine-tenths of its victims.

I would not place myself on record as being in favor of wholesale graduation of incompetent men. On the contrary, I am in favor of reducing to a minimum the number of students entering on a professional career, who by make-up, deportment, address and education are unfitted for dentistry or medicine. This could be done by an educational board and paid for by the state. Far better would it be to inform the applicant that, in the judgment of the board, he is specialized by nature more in the direction of shoveling sand than in the line of making artificial teeth. If, however, the individual chose to act on his own judgment in the matter, and failed to pass the examination, then the institution would be free from the odium of non-fulfilment of contract.

Another monstrosity which I desire to cite is a hybrid, called in school parlance a pony. This monstrosity is the illegitimate

offspring of a sire known as a quasi teacher, and of a dam known as the American boy. Let examinations be made practical, let lectures be made concise, clear and comprehensible, and the pony will soon be a thing of the past.

In times of reverie and forgetfulness—we all have just such times on these occasions—I see three great schools, (1), the institution of the past; (2), the one of the present, and (3), the ideal school of the future. I see the first giving didactic instruction only; her students do well. I see the second doing all this and saying to her students, "Go, make so many bridges, fill so many cavities;" her students do better. I see the third giving less didactic instruction, but methinks I hear her say, "Come, let us work together;" her students make in minimum time maximum attainments.

Mr. Toastmaster, I realize, as do you, that after-dinner speaking is the science and art of saying something in no time at all, while on the one hand we strive not to bore our hearers and on the other studiously try to say something witty, so if you will permit me, sir, I will call your attention to my Shakespearian qualities in *A Hen's Soliloquy*, the soliloquizing party having reference to the gallinaeous genus and not to "hen medics:"

A HEN'S SOLILOQUY.

There was a brood, hatched in a pen,
Nurtured kindly by a hen.
The chicks they numbered one, two, three;
They were web-footed as they could be.

To one she said, "Darling sweet,
Brown thy breast, classic thy feet;
Be not imprudent, gone on whim,
Venture not out—learn to swim."

Goosie one, its mother's pride,
Swam on dry land—later died;
In soliloquy, mother would say,
"Theory alone, you've gone to stay."

"My second, dear, this warning take,
Venture out on yonder lake."
Web-foot heeded—a clumsy lander,
Made a success on lake Michigander.
In soliloquy, mother would say,
"Theory and practice have come to stay."

"Now my last, I'm growing old,
Come with me before we're sold;
Together we'll swim waters wide,
Return at eve on Luna's tide."

Together they launched,
The journey they made,
The mother became weary,
But goosie it staid,
In soliloquy, mother would say,
"Clinical teaching, you ought to stay."

The mother still wonders
To this very day,
What's keeping her darling
So long, long away.
But goosie found company
On Michigan's pool,
And is now a chemist
In a gallinaceous school.

THE DENTIST ABROAD.

Delivered at the American College Alumni Banquet, April 4, 1895.

BY M. KRAUS, D. D. S., LATE OF THE IMPERIAL HOSPITAL IN VIENNA.

LADIES AND GENTLEMEN:—Ever since I have been conscious that I possessed five senses I have been a student. I have followed the study of the natural sciences with a special love, and especially the most beautiful and noble of these natural sciences, namely, medicine and dentistry, and I believe that as long as I live I shall remain a student, for neither in medicine nor dentistry does study ever cease. In natural science there is no limit and in all nature the greatest creation is man, and his organs are unsolved mysteries, and they will always be the source of further investigation. The great anatomists Hyrtel, Zuckerhandl and Egly, and the pathologists Rokitansky, Virchow and Wedel realized that it has not been possible for them to reach the uttermost limits in the sciences of anatomy and pathology.

The history of the development of dentistry as a science is probably well known to all of you, my colleagues, and as my theme must be handled briefly I shall not go over it at this time, but will call your attention more directly to the conditions of the

study of dentistry in Vienna, the capital of the East, from where I came, and where I devoted a greater portion of my life to the study of dentistry and medicine. Vienna is known among Europeans as the centre of science, art and music. The medical faculty, known as the Imperial Royal Faculty of the University of Vienna, has always been known and is at the present time recognized as the best in the world; hence from all parts of the world there is a pilgrimage of the sons of Esculapius to this faculty to listen to their lectures and to attend the great clinics of these renowned professors, and to take advantage of the immense clinical material that is presented in this great city. Among the numerous students it is my pleasure to say there is always a large number of intelligent Americans.

Whoever desires to enter upon the practice of dentistry in Austria or Hungary must possess, according to the laws of that country, a diploma giving him the title of Doctor in the entire healing art, and this is, of course, the degree of doctor of medicine from the University; when he possesses this he is entitled to select any of the specialties of medicine and among them that of dentistry. The privilege to become a student of the medical or of any other faculty in that country is obtained after satisfactory proof has been rendered that the person's character is above reproach; that he is not under twenty years of age, and that he possesses the necessary preliminary scientific education. The doors of the University are closed to anyone who cannot prove that he is in possession of what is termed a "certificate of maturity," or a certificate of ripeness; in other words, a certificate which proves that the holder has obtained sufficient education and knowledge that he may be able to fully comprehend any of the sciences that may be taught in the University. Such a certificate can be obtained only after having attended eight years at the gymnasium, and after having passed satisfactorily the examinations in all of them. This course of study is equivalent to the Bachelor of Arts degree in this country. These eight years of gymnasium study mean that the student has spent eight full years, that is, the courses in summer and winter at the gymnasium, these being preceded by four years of study in what would correspond with your normal schools. Only after he has passed through this severe ordeal is he entitled to present himself for examination for a certificate of

maturity, and when this has been satisfactorily attained he is entitled to enter the University; hence in our country it is impossible for a farmer, carpenter, cigar-maker, car-conductor, school-teacher or drug clerk to enter from any of these occupations directly upon the study of dentistry or medicine, a condition which is unlike that in this country, where it is possible to become a dentist or physician after having attended lectures for three courses of six months each. In Vienna medical students must take five full years which are divided into ten courses; then after that a year is spent in completing the examinations, and when these have been successfully passed it is essential to enter some of the great hospitals for several years as a practitioner, and there to obtain the necessary practice before he is considered fit to treat the patients in private practice. If one selects dentistry as a specialty it is necessary, in addition to the above course, to attend the department of dentistry two years and to take one course in technics, or he must become associated with a first class dentist and learn the technical and operative branches.

After what I have just said you will come to the conclusion that in our country medical students receive an excellent education, and therefore that our medical men are thoroughly educated in medical science, both theoretically and practically. Although we have at the present time a Royal Impèrial Dental Institute, which is arranged in first class style and at whose head we have one of the most scientific and able dentists, and although it possesses a number of excellent teachers, I must admit that the dental education is not as thorough as it might be. This fact is known as well to the profession as to the laity, and hence the best field for the education of a dentist is well known to be this country. Although America is young, it is an admitted fact that the Americans are at the head of dentistry, and especially is this so in the technical branches. They are in advance of Europeans to an extent which it will be difficult to attain in a short time. Also, in scientific branches Americans are entitled to a great deal of credit. It was an American dentist who first administered anaesthetics to allay pain during operations upon the human body, and thus humanity the world over is deeply indebted to America. This invention alone has raised Americans in the estimation of all Europeans. Lecky, in his history of European morals, says:

"It is probable that the American inventors of the first anæsthetics have done more work for real happiness to mankind than all the philosophers from Socrates to Mill."

The dental engine, the rubber dam, etc., etc., all came from America. These are the reasons why I have come some thousand miles and have stinted neither time nor money to become thoroughly conversant with the science and art as it is practiced in this country. This is also the reason why the thorough Americans who go to our countries are always in great demand, and their skill and ability are recognized to the extent that many of them are employed at imperial and royal courts and by the aristocratic in general. That they have secured many marks of esteem for their scientific attainments, and that they have secured an easy competency more quickly in our land than our own natives is readily accounted for by the fact that they give better service, and therefore receive better remuneration. They are also protected in a measure because the doors are closed to humbugs by the laws of the respective governments.

When I return to Austria I shall endeavor conscientiously to introduce and to freely give to my colleagues what I have learned here of your art and science. The seed which has been sown shall bring forth good fruit, and I shall lose no opportunities to herald to the world the good qualities and thoroughness of the dental colleges of America.

The Treatment of Syphilitic Mucous Patches.—Ohmann-Dumesnil (St. Louis Med.-Surg. Jour., 1894, LXVII, p. 137).

According to our author, the best remedy for mucous patches is chemically pure nitric acid. It is to be applied by means of a little "wooden paddle," about one-quarter to one-eighth of an inch broad, and thin in proportion, with a handle about the length and thickness of a lead pencil. The patch is to be swept over with the paddle, when it will at once turn white, the healthy membrane remaining unchanged. If there should be a fissure in the mucous membrane, the narrow end of the paddle can be inserted into it. It is not a painful application. The patient should be instructed to breathe out while the application is being made, so as to avoid inhaling the fumes. If extensive areas of mucous membrane are involved, the atomizer must be used with a solution of bichloride of mercury 1 to 500. It is well to lower the dosage of mercury by the mouth when this is used, as some mercury will be absorbed from the spray.

Digests.

The Dental Register for May, 1895.

"The Origin of Pathological Tendencies," by James B. Hodgkin, D. D. S. The writer says that although man can never know the secret of life, yet he still hopes to find that which makes him what he is. Of all nature's constancies, nothing is so persistent as type. Moving within certain lines and developing within certain channels, nature is, with but slight deviation, one. The man of today is wonderfully like his ancestor, the savage; so like that we are puzzled to know if the skull we dig up was buried one hundred or one thousand years ago, and mentally this is more true than we are willing to confess. Reproduction, not creation, is man's mission, and reproduction within certain well-defined limits. In reproduction man has been allowed to reproduce not only his individuality, physiologically, but in some degree his abnormalities and weaknesses. With the two forces operating—one strictly enforcing the type, and the other causing, within certain limits, physiological deviations from that type, there seems to me to be a *third* or possibly a modification of the second force. Pathological conditions, or rather the tendency to pathological conditions, seem as strictly inheritable as physiological ones. That constitutional bias by virtue of which certain diseases are likely to be developed seems to be as much an inheritance as symmetry of form. When a man is always in a hurry and always nervous, we charge his hurry with making him nervous, but really it is his nervous force that makes him hurry—and this he inherits.

If we grant that constitutional tendencies are inheritable and inherited, the question arises, in what way? William Hunter said that in a life spent in a lying-in hospital he had never seen a case in which the birth-marks, where they existed, corresponded with the mother's expectations. A widow, remarrying, will bear children like her first husband; a female of any species receives from her first sexual contact an impress that persists through many successive pregnancies. Some mysterious stamp is made on the nervous system by this first contact, that modifies in an

obscure way many succeeding pregnancies. We must look to the moment of conception for pathological tendencies no less than physiological stamp. Such a theory relieves us from the necessity of believing that man is the creature of circumstances, and of the numberless accidents and impressions of intra-uterine life; it shows beyond doubt that in this way, and this way only, can the type be preserved. It relieves us from the necessity of accepting the doctrine that teeth can be starved in an otherwise well-nurtured body; and that, save in the case of accidental interference with nutrition, as in the case of an eruptive fever, or the pitted and semi-lunar markings of syphilitic inheritance, they are molded in the form and after the style of their ancestors. Man's nature clings to type with great tenacity, and environments have not much modified that great fact. In the light of this basal theory we see how semi-pathological conditions by heredity become constitutional, and transmit themselves by one swift act to their ancestors, and by the individuality of primal stamp become a part of the person. Weak teeth, weak eyes, weak lungs—any weak organ is transmitted, and as pathologists we must fight the weakness.

"The Present Needs in Dentistry," by J. Taft, D. D. S.; read before the Mississippi Valley Dental Society, April 17, 1895. The writer says that the greatest need is a lack of proper appreciation for dentistry as an honorable and useful calling. The dentists themselves are greatly to blame for this lack, since he who practices his profession chiefly from a mercenary motive does not, either in action or words, honor it as he ought, nor is he capable of exercising the desired influence upon the public as he could under the stimulus of noble motives. As most students who enter the dental colleges have very crude ideas concerning true professional status and honor, those who have the student's professional education and training in charge should correct such false conceptions. Why should not he who is helping the student in preparation for his life work, do all he can to make that preparation as complete as possible; not only store his mind with the knowledge of principles and train his fingers to the highest manipulative skill, but also give him such ethical training as will best prepare him for a successful career? This is often as much

dependent upon deportment and correct manner as upon knowledge and skill.

Every dental college should have a museum fully furnished and supplied with every preparation serviceable for illustration in teaching; preparations of the natural organs, as well as enlarged models of the same are indispensable for the full presentation of many subjects. There should also be a good library embracing all the standard works on the science and art of dentistry, a complete series of the dental journals, and the published transactions, so far as attainable, of all dental societies. More attention should be paid to the study and teaching of hygiene—the laws of life and health. While the highest skill in treatment of diseases should be exercised, it is not as important as the ability to ward off and prevent recurrence of disease. The text-books used in dental colleges should be prepared more with reference to the needs of the students than the general practitioners, as the latter rely more upon the periodical literature for their reading matter. There should be more harmony and unification in modes of teaching, and in requirements. Some progress has been made in this direction, but there is still much room for improvement.

The Ohio Dental Journal for May, 1895.

"Hyperimic Pyorrhea," by D. Genese, Baltimore, Md. The writer instances a case of a lady who had been under treatment of her family physician for six weeks, and as she was getting worse, he, as her dentist, was called in. She had a high nervous fever, consequent on the condition of her mouth, which previous to this ailment had been perfectly healthy and clean. Now it was filled with a slimy exudation from the gum margins, so that both upper and lower teeth were completely hidden by it. The teeth were all loose from mercurial treatment. On lifting the gum margins from the teeth, they were perfectly white and free from tartar or other irritating causes. The writer put her on fish diet with saline aperients to eliminate mercury from the system, and as a local treatment prescribed:

Tannate glycerine	½ oz.
Boric acid.....	grs. xx.
Tinct. pyrethrum.....	2 dr.

There was much improvement before a week, and no recurrence of the trouble.

"The Use of the Turning Lathe in the Dental Laboratory," by G. W. Woodborne, Urichsville, O.; read before the Tuscarawas Valley Dental Society, January, 1895. The turning lathe is very useful in repairing tools and instruments, and in making new appliances. When you have a broken plate to repair, you can put an inverted cone bur into the chuck and drill out all of the necessary parts in half the time it takes to file them out. Holes can be drilled in anything. Solder can be milled off old gold plates or out of crowns. Any piece of steel can be put in the chuck and turned or filed down to suit you. You can make all of your polishing lathe chucks out of wood or steel, for your sand-paper, felt, corundum, in fact all of your grinding and polishing pieces, all handles, etc. After you have once owned a good lathe you will consider it indispensable. It will take the place of the burring engine in that class of work that takes side pressure, and is such a detriment to hand pieces.

"Hints," by C. J. Hand, D. D. S., Romeo, Mich. *Forming an air chamber for upper dentures.*—It is my rule to carve same in the impression, following the form of ridge. The pouring of the model gives the air-chamber mold in plaster; unequalled for obviating all the accidents consequent in use of lead or other metals pressed upon the model. The rubber cannot flow under and prevent close adaptation of plate to the roof of mouth. A small spoon excavator run around the edge of air-chamber will give a little raised ridge on the plate that greatly facilitates a speedy suction. This style of chamber can be made very shallow, which I consider the best. * * * *A separating medium that imparts a smooth glossy surface to models.*—Coat impression with very thin shellac varnish, just enough to color the plaster. Then coat with a varnish made by dissolving gum sandarac 3 parts, gum elemi 1 part, in pure alcohol. Must be thin enough not to form bubbles when applied with soft brush.

"Painless Dentistry," by E. H. Raffensperger, D. D. S., Marion, O. The writer thinks that something should be done to stop the wholesale extraction of teeth which should be saved, and

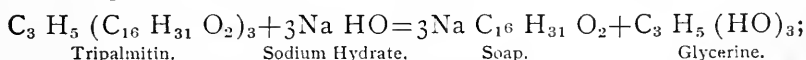
which would be were it not for the painless craze. The dentists will have to preach the salvation of teeth as never before, for, at the rate teeth are going now, it will be only a short time until the American people are toothless. The dental journals could start a reform movement that would be endorsed by the dentists all over the land, by refusing to advertise secret nostrums. It is inexplicable how an educated dentist can ever use in his practice any compound of which he does not know each and every ingredient, and any one who will inject into a person's gums something he is not fully acquainted with, is little better than a criminal.

The Pacific Coast Dentist for May, 1895.

"The Treatment of Putrescent Pulp-Canals and Resulting Lesions," by Joseph D. Hodgen, D. D. S., San Francisco; read before the San Francisco Dental Association. The writer says that as every dentist of average practice has many of these cases to treat, as most of them cause much suffering—nervous disorders, indigestion, etc., and as usually they receive poor treatment, more attention should be paid to an accurate and scientific diagnosis. The conditions and symptoms met with in troubles arising from absence or death of the pulp are as follows: *1st.* A dead pulp in a partially putrescent state, having an unobstructed communication with the external air, or the desiccated, tanned or preserved condition known as the mummified pulp, with either external communication or hermetic encasement. *2nd.* A dead pulp associated with an acute inflammatory condition of the pericemental membrane, with or without an acute alveolar abscess. *3rd.* A dead pulp resulting in a chronic inflammatory condition of the pericemental membrane, with a chronic alveolar abscess. *4th.* A dead pulp resulting in an alveolar abscess, from which there is a fistulous tract opening upon either wall of the alveolus and penetrating the soft tissue enveloping it.

The first case is the most difficult to contend with, yet it presents the most hopeful characteristics. The patient has probably suffered no inconvenience and the operator may cause the first disturbance, which is likely to be serious. The absence of any inflammation makes cleanliness and thorough antisepsis all that is necessary preparatory to the final filling of the canal, and the intrusion of any instrument beyond the apical foramen is a serious

error. After adjusting the dam all the debris should be removed by a thorough irrigation of the cavity and canals with a tepid two per cent. solution of carbolic acid. After drying, the canals contain the decomposed products of albumin ($C_{72} H_{112} N_{18} SO_{22}$), water, the salts common to the blood, and other incidental compounds. The decomposed albumin requires attention, for in it putrescence and decomposition principally take place, resulting largely in fats and fatty acids. Of these latter palmitic is especially active, and forms with the glycerine a compound natural and abundant in human fat, tripalmitin. Therefore, nothing is more useful, or more scientifically indicated than a strong solution of the dioxide of sodium ($Na_2 O_2$). With this a saponaceous compound and glycerine is formed on the one hand—



and on the other, by free and active oxygen uniting with the noxious compounds remaining, such as carboretted and sulphuretted hydrogen, we have harmless gases in their stead, namely, SO , CO_2 , and $H_3 N$; furthermore, the bleaching and antiseptic properties of oxygen establish an excellent condition of purity and cleanliness. The striking smell of soap shows the reaction, and gases are evolved from the solution in the cavity. The tissue and accompanying tubuli may be removed with a barbed broach from the sides of the canal. After several washings with the carbolized and dioxide solutions the canals will be perfectly clean, and should be thoroughly dried, then cotton dipped in an antiseptic and carried to the apex, and the cavity filled with gutta-percha. At the next sitting the cotton is removed, the canals washed with a strong carbolic acid solution, perfectly dried, and filled. At both sittings the gum tissue over the teeth next the affected one is cautiously painted with an equal part of the tincture of aconite and iodine.

The second case differs little in treatment from the first, except instead of using an antiseptic for the cleansed canals, they should be as dry and clear as possible, with the crown cavity hermetically sealed. The reason for this is to attract by capillarity any pus that may be present in the apical space. The gum near the tooth should be painted with a rubefacient, and if the patient suffers much pain he may take a cathartic at bed-time. At next sit-

ting the canals should be washed with an antiseptic, dried and then thoroughly treated with dioxide of hydrogen until no effervescence is noticeable, then wiped, dried, and dressed antiseptically. If there has been no disturbance, and no indication of pus is observed at the next sitting, the canals may be filled.

In the third case, as in the others, perfect cleanliness is demanded, and can be obtained with the solution already mentioned. If the canals are very purulent after the debris is removed, place a little powdered dioxide of sodium in the cavity and add a drop of water, working it down into the body of the putrescent pulp. The cleansing is very effective, but care should be taken not to pass through the apical foramina. When the canals are cleansed and dried, an antiseptic solution may be broached through the foramina, if found free, into the blind abscess, and a 15-per-cent. solution of the dioxide of sodium may be driven into the abscess sac. After drying the canals they should be worked until no pus is present, then be finally dried and antiseptically dressed. The same should be followed at the subsequent sittings until the abscess sac is entirely free from pus and no sepsis is noticeable. The soft tissues should be treated to a rubefacient.

The fourth case should have the same general preliminary washing and drying as the others. All infected dentine should be removed, and free access to the pulp-chamber and canals secured. After drying the canals, syringe an antiseptic through each into the abscess and out the fistulous tract; any obstruction can usually be removed with a broach, or by means of the sulphuric acid treatment. When the canals, abscess, and fistulous tract have been well irrigated, all septic matter removed, and the canals perfectly dehydrated, moisten canals well with oil of cassia, volatilize and force it into tooth-structure with hot-air blast, dry canal, and it is ready for filling. But if a partial denudation is suspected of the end of the root, occasioned by the process of suppuration, or carious bone surrounding the root, defer filling for a week, simply dressing canal antiseptically and sealing. If carious bone is suspected, enlarge the fistulous opening and remove all the carious structure possible, then to dissolve remaining carious portion, wash out cavity with aromatic sulphuric acid, which also stimulates the parts to a healthy action, favoring granulation. Dr. W. J. Younger strongly recommends lactic acid for this purpose,

claiming that it is a solvent of the lime salts forming the lactate of lime, and that it is much less disagreeable to use. When the pericementum has returned to its normal condition, the canals may be filled, leaving the carious tract for further treatment, which depends entirely upon the removal of the carious tissue; when that is removed the cavity formed must be induced to fill with granulations from its depth outward. This is best accomplished by packing lightly with an antiseptic gauze, or a wax plug from the inner end of which a small amount is cut off as the cavity fills.

"Carelessness in the Construction of a Denture on a Base of Rubber," by Charles Buxton, D. D. S., San Francisco. In the construction of a vulcanite plate a great lack of care is often shown in the following respects: When the impression is not perfect many think it can be restored with wax on the model carved to correspond to the mouth. Shellac varnish is often used so thick that it forms a skin and blurs all the finer lines of the impression. When separating impression from model the knife is frequently forced into the face of the model, or portions of the plaster ridge cut away; the model may also have air-holes in it; still it is considered good, and a base-plate is placed in position with a wax rim attached. This base plate will often fit the model reversed; so that a correct articulation cannot be obtained. * More judgment should be shown in the selection of teeth, copying the remaining natural ones as much as possible. * Too much wax is often used in waxing up, making more work. * After removing from articulator the case is flaked high, the teeth coming in contact with upper cap of flask, or to one side, making the plaster investment weak at certain points; allowing oil or wax to coat the teeth, causing them to drop from investment when the flask is separated. Wax is allowed to remain in sections of the flask when packing, thus destroying the integrity of the rubber. * Packing instruments, pan used for softening rubber, fingers and bench are often covered with plaster and grease, coating the rubber and making the perfect union of pieces impossible. * The sections of the flask are brought together too rapidly, displacing teeth and breaking model. * All cases are vulcanized at the same temperature and for the same length of time. * Remov-

ing from vulcanizer and flask before the case is perfectly cold, changing shape of plate and breaking teeth by a too-sudden contraction of rubber. * Finishing plate roughly, allowing it to extend beyond its proper limit and not having it of uniform thickness. * * * *Simple method of preventing dark joints.*—Grind gum sections to fit closely, and, just before removing model from articulator, remove every other block and touch the joints with a little oxy-phosphate mixed thin; then replace the block and wipe off surplus cement. Thus you use very little cement and have a perfectly sealed joint. * * * *To prevent porcelain teeth becoming loose in partial vulcanite work.*—When making plates where the teeth are scattered we often find one or more porcelain teeth quite loose, owing to the contraction of the vulcanite. To prevent this bend the pinheads from each other, forming a wedge. To prevent pinheads showing through finished plate bend them down towards face of model.

“Dental Jurisprudence, Negligence,” by H. R. Wiley, A. B., San Francisco. Negligence is fairly defined as “Failure to do what a reasonable and prudent person would ordinarily have done under the circumstances of the situation, or doing what such a person would not have done.” The law recognizes the existence of three degrees of negligence, viz.: slight, ordinary and gross. Mr. Story defines slight negligence as the want of great care and diligence; ordinary negligence is usually defined as the want of ordinary care or diligence, and gross negligence is the want of even slight care and diligence.¹

The dentist may possess the highest degree of skill known to the profession yet be no less liable for injury resulting from his negligence in the treatment of a case, whether through carelessness in performing an operation or, having undertaken the treatment of a case, through failure to administer such remedies at the proper time. The question as to whether or not the defendant has been guilty of negligence must be determined by the jury from the evidence in the case. Where it has been proven that injury to the plaintiff has resulted from the negligence of the defendant, “that others acted in the same way as he did,” is no defense for the latter. Nor will the fact that the services were gratuitous relieve the wrong-doer from liability.

Contributory negligence is a good defense. If, on the trial of the case, it be proven that the plaintiff by his own negligence aided directly in producing the injury, he cannot recover damages. A Massachusetts Court said: "A patient cannot recover, either in contract or in tort, for injuries consequent upon unskillful or negligent treatment by the physician, if his own negligence directly contributed to them to any extent that cannot be distinguished or separated." That, "in an action for negligence, the plaintiff's concurrent negligence is a complete defense" has been held in numerous cases, and is a familiar and well established principle of law. It is probably true that in the majority of the cases that are commenced against dentists to recover damages for injuries alleged to have resulted from negligence on the part of the defendant, the plaintiff himself has directly contributed to the injuries complained of and ought not to recover. Many patients contribute to their own injury by remissness in the matter of observing the directions laid down by the physician, and many more develop injurious tendencies from otherwise healthful conditions, by reckless exposure or neglect to follow the simple and ordinary rules of health, while they are being treated. Mr. Reh fuss, in his work on Dental Jurisprudence, cites as an example: "If, in the treatment of an alveolar abscess, the patient neglected to follow the dentist's advice in every particular, and adverse results should occur, such as a fistulous opening of the outside of the cheek, no suit could be successfully maintained against the dentist." In an action for damages for injuries alleged to have resulted from negligence on the part of the defendant, the plaintiff must prove the negligence; and, on the other hand, if contributory negligence be offered as a defense, the defendant must prove to the satisfaction of the court or jury that the plaintiff by his own negligence directly contributed to the injuries charged,—neither will be presumed.

Items of Interest for May, 1895.

"Method of Lining Rubber Plates with Aluminum," by Thos. R. Pixton, D. D. S., Philadelphia. It is sometimes necessary to line rubber plates with some metal, and as gold is too expensive for many patients, something must be substituted. Aluminum, 28 gauge, is very satisfactory. First anneal it with a blow-pipe

by blowing a slow, broad flame till the metal becomes white, like unburnished silver. If heated to a red heat it will burn and become worthless. Now take the cast which must be hard and dry, place the aluminum on it and press the metal down in the cast with your thumbs. Then burnish it in shape with the handle of a bone tooth-brush and, with soap and water for a lubricant, in a few minutes you can burnish the whole palatal surface to shape. Anneal again. Hold the plate well in the cast and commence to burnish from the palate on the top of the ridge. In either hammering or burnishing commence from the center and stretch the metal to the outer edge, otherwise you get folds that will be hard to remove. After having the plate well burnished on the palate and ridge, hold the plate firmly with your fingers and commence folding over a little at a time and even all round to prevent folds. With a little practice and patience you can make a very close fitting plate equal to being swedged. Now prepare it for adhesion to the rubber, which is done with a sharp enamel chisel. Hold it at an angle of about twenty-five degrees and make an incision a thirty-second of an inch long, turning up the metal in the form of a hook. Do this all around the edges and over the palate. Then cut around in the opposite direction, forming a double hook; these are small but quite sufficient to hold the rubber. Now anneal the plate for the last time to make it soft, so that if it is not a perfect fit the pressure of the rubber while screwing the flask down will force the metal tight all around the cast and make it a tight fit. Set the teeth up on wax, and proceed in the usual method, as in making a rubber plate.

"Luxation, or the Immediate Method in the Treatment of Irregular Teeth," by George Cunningham, in World's Dental Congress. When an erupting permanent upper incisor has become twisted on its long axis, so that its mesial and distal surfaces assume a labio-palatal direction, and its cutting edge is proximately at right angles to the opposing tooth of the lower jaw, it has been the practice of several English practitioners to treat it by what is termed "torsion." This operation consists of grasping the tooth near its neck with a suitable pair of forceps, the beaks of which have been guarded with sheet lead or some other substance to prevent injury to the enamel, and then steadily, but

forcibly, rotating the tooth within the socket in its normal position.

Though some teeth so treated have been lost by putrefaction of the pulp and abscess formation, or by necrosis and absorption; there is ample evidence that the operation has been completely successful in a sufficient number of cases to warrant the operator continuing the practice under such circumstances as the patient being unwilling or unable to undergo the slower method of rotation by mechanical appliances.

It is evident that an important factor in their treatment must be the particular stage of root formation. The rotation of such a tooth for a young patient where the root is incomplete, and therefore attached to the surrounding tissues by the solid cord of tissue filling up the funnel-shaped root, must differ materially as to conditions from the rotation of a similar one with the fully completed root, where the central soft tissue connection must be filamentous rather than cord-like. I am not aware of any reliable statistics which indicate that the operation is more practicable in one case than the other, nor what are the reasonable prospects and percentage of success. In my own practice I have, therefore, always adopted slow rotation by mechanical means, and quickly succeeded.

The fact that immediate rotation has been successful, coupled with the knowledge of the extraordinary repair which takes place in fracture of the jaw even accompanied with complete dislocation of the teeth, induced me to resort to luxation in the treatment of irregularities where ordinary treatment was not applicable. In the course of my papers and discussions on implantation, I have suggested that this artificial production of a fracture of the alveolus is appropriate in some cases, and possesses the advantage of enabling me to move a tooth in a new position without separating it from its attachments to periosteum and the socket.

"Teeth of Cliff Dwellers," by Dr. J. W. Greene, Trenton, Mo.. The writer says that a short time since he examined the skulls and mummified bodies of twenty-six men and women who, it is said, lived in the cliffs of Arizona and Colorado over five thousand years ago. There were only three characteristics in the teeth different from what would be seen in the same number of people now. In all but three cases the lower jaw protruded so as to

bring the front teeth in direct occlusion, and give them the appearance of "double teeth all round." In all these mouths there was but a single instance of caries; which was on an anterior proximal surface of a first upper molar. But "chemical abrasion" was present on the occluding surfaces of more than half of all these teeth. The maxillaries were so short in most of these cases that the second molar reached their full length, and the wisdom teeth were yet hidden in the bone, never having been cut.

To support a presumption that these people lived on vegetables, there was no implement of the hunt found with them, though packages of seeds of different kinds were; and among them, pumpkin seed and Indian corn, identical with that of today. But while these people knew nothing of metal for tools or weapons, they were up in some of the evidences of civilization. They had the lost art of weaving, not knitting, seamless water bags and baskets with picture designs in, not on, them, of the lint of the Mexican soap weed. One woman seemed to have been a worker in hair, as she had with her a number of sample rolls of various colors.

"To Make Dies for Small Cases without Moulding," by Dr. D. W. Barker. In brief, the method is to cast the dies directly on the model, which may be easily and quickly done, thus:—A plaster impression being taken, a plaster model is obtained. With the tip of the finger dipped in powdered soapstone rub the model till smooth; build a wall of moldine, potter's clay mixed with glycerine, half an inch high around the model, covering the teeth and all parts not to be covered by the plate; the parts to be covered by the plate will then be at the bottom of a well with sloping sides; in this well pour lead until it is even full; the lead should be poured just before it begins to cool; separate this lead counter from the model, and around it build the wall of moldine as before, leaving exposed only the surface to be covered by the plate; with a ball of cotton held in the pliers and dipped in powdered soapstone, dab the surface of the exposed lead till it is covered by a film of the fine dust; in the well thus formed pour fusible metal, separate and swage as usual. By this method no time is lost making sand molds, varnishing casts and waiting for them to dry, and the results will be found exact and satisfactory in every way.

The Chicago Tribune, June 9, 1895.

Character Read by the Teeth;" copyright, 1895, by Hazel Dell. It is impossible to conceive of beauty in either a man or woman without a set of regular, white, well-shaped teeth, and a woman stands or falls by the beauty or defects of her teeth. De Bay, a well-known authority on the hygiene of beauty half a century ago, says: "I have never known a man or woman willing to live with a mouth full of diseased and rotten teeth who was worthy of trust. I consider it perfectly proper to regard all such persons with extreme prejudice, and the result of years of careful study is that decayed teeth covered with tartar, with the diseased gums, which always result from the putrid condition of the mouth, are a never failing indication of a culpable disregard for decency and cleanliness. I have never known a man or woman with rotten teeth and reeking breath who could be relied upon to tell the truth, to guard a confidence, or to maintain a trust—they are moral as well as physical slovens. Moreover, every one who is content to live an object of most natural disgust and in such filth is conscious of his or her own infirmity; such people avoid smiling and laughing, and when forced to do so they draw down their lips, having something they wish to conceal. You will find that the people who never smile frankly never live frankly. In their moral as well as physical lives they will invariably endeavor to cover up the moral uncleanness which inevitably accompanies physical filth."

The other side of this picture is a much more agreeable one, and we must all agree that a beautiful set of even, white teeth is of infinite charm. Many and many an otherwise commonplace face has been redeemed by a mouth full of brilliantly white teeth. Monin, the distinguished hygienist, says: "There is nothing in the world so entrancing as a woman's smile when it displays two even rows of pearls. Perfect teeth are compact, regular, smooth, and of pearly whiteness; the front teeth of the perfect set are moderately small. The fortunates who are possessed of such teeth are usually very good tempered. Teeth either strong and well shaped or frail and not perfectly formed are largely ours by inheritance. The law of heredity is indeed inexorable and unto the third and fourth generation one can easily trace the virtues and the excesses of our forefathers. The individual who

is one of a family all with beautiful teeth has usually come into this desirable legacy through two or three generations of healthy, sober, cleanly ancestors all endowed with strong, fine teeth—they have been most attractive when they laughed and they have been aware of the fact and have laughed and been good-natured and frank people of kindly, liberal lives. Three generations of drunkenness, disease, or of dissolute life in almost any form will just as infallibly result in fragile, delicate teeth extremely susceptible to decay and early loss or in misshapen teeth. I have seen this fact corroborated in my own time in the case of a very well known family. The grandfather, whom we will call John Smith, had teeth of most remarkable beauty—perfect, and without decay or loss up to his death at 70. He had been a man of temperate habits and uniform good health. His wife was consumptive and died in her youth, leaving two daughters, both inheriting the beautiful teeth in form and appearance of their progenitor—but not so strong and frequently requiring the attention of the dentist—still noticeably beautiful teeth. One of these daughters married a consumptive—she in her turn became the mother of two daughters, both inheriting the pulmonary disease and both with teeth so frail that though they lived only to the ages of 30 and 32 they had scarcely a tooth which had not been filled. The other daughter of John Smith married a strong man of splendid physique. Her three sons, who are now men, have the most beautiful teeth I have ever seen. They know dentists exist only from hearsay."

Small, short, square teeth, when sound, are indicative of great bodily vigor and strength; they are rarely found in the mouth of an intellectual man. Many very vain women have noticeably long, fragile teeth. You need not look for much force from their possessors. The huntsman looks carefully at his dog's teeth, and selects his canine companion only after such an examination. The horseman invariably looks first at the mouth and teeth in passing judgment on a horse. The condition of the mouth is just as significant in human beings. Long, projecting teeth denote a grasping disposition, especially when great breadth is seen at the upper part of the nose next the cheek. Usually long and narrow side-teeth, commonly called "eye teeth," are the accompaniment of a doglike tenacity. People with these teeth sometimes curiously

resemble dogs when they are angry, and show their teeth just as an enraged dog will—they snarl literally! They will often have long, narrow hands, slender, tenacious fingers, and narrow feet. With a strong under jaw, projecting very slightly, and these long teeth the subject will fight to the death before yielding; with a receding chin the indications are ambition, self-conceit, and failure to really accomplish great things. Very resolute, determined women usually have strongly set teeth, but from a habit of compressing the lips do not display them often. Almost all the men remarkable for energy and strength of will have this same cast of mouth and jaw—notably Napoleon, Luther, Cæsar and Frederick the Great. It is said that nearly all red-headed people have rather short upper lips, rising in the center, displaying the front teeth, and that they are singularly susceptible to flattery and exhibit a great desire for approbation. Men of great resolution have frequently rather large teeth, with a development of the jaw bone in the center amounting to a projection and producing a noticeable fullness there. This characteristic is increased in the subjects who combine it with straight and rather long eyebrows. Arching eyebrows are always a sign of a more easily moved nature.

Small, pointed teeth denote many unpleasant characteristics. When accompanied by near-sighted, round eyes, a pug or snub nose, and noticeably small and sometimes very pretty ears, their owner will be found to possess many catlike attributes. A woman of this type will naturally make the gestures with the right hand about her face and head of the cat with its paw. Tangled teeth, or, as a well-known wag remarked, accidentals, not dentals, resembling the crooked kernels in a badly demoralized ear of corn, are the index of a reckless and unbalanced nature; where they are long and crooked, lapping in and out, they rarely accompany strength and persistency. Long, protruding canine teeth, or tusks as they are commonly called, are read by physiognomists as a sure indication of innate brutality, and a human face with protuberant jaws certainly gives a wonderful expression of degradation and brutality to the countenance. This may easily be proven by changing the mouth in a beautiful picture of a noble face. Enlarge the mouth and make the jaws protrude—the incisors project—and the result is a hideous transformation. Michael Angelo

notably made use of this horrible jaw to produce the absolutely fiendish expressions of his demons in his "Last Judgment." The inconstant teeth are small and even, often brilliantly white, but widely separated; each tooth has a well defined space between it and its neighbor. Usually in men a small nose and weak chin are seen with these teeth; the lips may be well formed, but will frequently be thin, and the mouth in smiling forms an oblique line, showing the glittering white teeth. The possessor is by nature treacherous, inconstant in his affections, and will turn on a woman or attack a weaker man; he will never meet a man of his own size in an encounter, and will stab in the dark or work through a third party.

Henry Irving makes his mouth up after this type for his wonderful Mephisto, and accentuates the cruelty of its lines by the wicked arch to his eyebrows. Ratlike teeth are frequently seen in the human species. They are long, narrow, and sharply pointed. They indicate craftiness, slyness, and accompany a narrow, beaklike jaw formation. Frequently the ratshaped teeth are of a dazzling whiteness. With a receding chin the tendency to ratlike qualities is increased. Malformed teeth may in our day be easily rectified and crooked teeth straightened. Delicate teeth, by great care and proper diet, may be made strong, and, according to many physiognomists, the character of children is changed with the transformation from deformity to regularity and beauty. Thus the child afflicted with protruding and crooked teeth, conscious of its deformity, may become sullen and morose; it knows it is not so welcome as the little one with the pretty teeth. A skillful dentist effecting such a metamorphosis not only accomplishes a wonderful dental improvement, but aids in forming a happy character out of one fatal to be unhappy without his assistance. Prof. Miller, a noted authority of Berlin, gives the following formula as an excellent preventive of decay of the teeth:

	<i>Grams.</i>
Thymic acid.....	0.25
Benzoic acid.....	3.00
Tincture of eucalyptus.....	15.00
Alcohol.....	100.00
Essence of menthol.....	0.75

Pour a few drops of this liquid into half a glass of water and rinse the mouth with the mixture three or four times daily. It is essential to brush the teeth, removing all particles which may have lodged in and between them, before using the above wash.

The Dental Cosmos for May, 1895.

"Observations on the Nutrition of the Teeth," by Albert P. Brubaker, M. D., D. D. S., Phila., Pa.; read before the Pennsylvania State Dental Society, July 10, 1894. This paper is not presented with the idea of suggesting any specifics in the long list of foods which would have selective influence on the nutrition of the teeth, but rather with the purpose of emphasizing the necessity of a more intimate acquaintance on the part of the practitioner and student, not only with the physiological processes, but the pathological processes which affect the body as a whole, and of which the changes in the teeth are but special illustrations. This having been done, the limitations and capabilities of foods as modifiers of tooth-nutrition will become somewhat more apparent.

If correctly understood, the views entertained by the majority of writers on dental pathology are that the imperfections of enamel and dentine are attributed to defects in structure and function of the enamel-forming and dentine-forming organs, in consequence of a deficiency of lime-salts in the food-supply. In this paper the attempt will be made to establish the proposition that the imperfect enamel and dentine are due to defective enamel and dentine-forming organs, consequent not to a deficiency in food-supply, but to the operation of extraneous forces which impair the assimilative power of the formative organs, resulting in a failure to retain the lime-salts furnished in sufficient quantity by the ordinary foods. A few words as to the physiological development of the teeth may be of assistance in arriving at correct conclusions. It is well known that the primitive organic basis of both the enamel organs, the ameloblasts, and the dentine organs, the odontoblasts, is that highly complex, unstable compound, protoplasm, consisting of water, albumin, sugar, fat, and inorganic salts. In the performance of its functional activities, namely the production of mature enamel and dentine, it undergoes various disintegrative changes, which if not arrested would result in its

ultimate destruction. This is provided against by the constant supply of nutritive materials furnished by the lymph stream. Inasmuch as one of its specific functions is the formation of enamel and the calcification of newly-formed dentine, it is evident that among the inorganic salts the calcium salts must occupy a prominent position. These are furnished in pre-natal life partly by the calcified tissues of the mother, and partly by the food; in the post-natal life by the mother's milk, provided this be sufficient in quantity and quality. The food-supply being provided for, the evolution of a tooth under the influence of the protoplasm should be perfectly normal; that this is not the case in all instances is evident. The cause of the perverted nutrition is a defect in the character of the protoplasm, due to the operation of some inherited specific influence.

By the term calcification let it be understood also a chemical union, not a disposition merely, between the lime-salts and the organic dentine brought about by the agency of living protoplasm; moreover, let it be borne in mind that calcification once established is not forever permanent, but that living dentine, like living matter in all other portions of the body, in the performance of its functions is continually undergoing disintegrative changes giving rise to waste products which are removed by blood-vessels and possibly lymphatics, and at the same time undergoing integrative changes by the assimilation of nutritive materials furnished by the blood-vessels of the pulp. We conceive, therefore, that the evolution of a normal tooth will depend on the physiological activity of a highly differentiated form of protoplasm, differing somewhat in chemical composition and life duration, as found in the cells of the enamel organ, the ameloblasts, and in the cells of the dentine organ, the odontoblasts.

This being accepted, it inevitably follows that the introduction of an extraneous force, capable of impairing the composition of protoplasm and interfering with the harmonious play of its physiological forces, would result in an impairment in the products of the activity of that protoplasm. It might be in the character of the enamel or dentine and related to density or chemical composition, and this no matter how perfect the food-supply might be. It is not a question of food-supply in the majority of instances, but a question of imperfect protoplasm.

As long, therefore, as some extraneous force is active, so long will there be imperfect tooth-formation. In all instances the problem reduces itself to two classes of factors, viz., extraneous influences and food-supply, the relative importance of which must be determined by the practitioner himself. We have abundant evidence of the pernicious activity of extraneous influences upon the normal activity of protoplasm in the development of the tissues in the syphilitic, the tubercular, the scrofulous, and gouty diatheses. In all these constitutional states the pathological changes in the tissues have no direct relation to the quality of food, but to the disturbance of their assimilative power. In the inherited syphilitic diathesis, for example, the constructive or assimilative power of the protoplasmic basis of the entire body is disturbed or impaired by the syphilitic virus, and, in consequence, there is an impairment in the development of the epithelial tissues, including the teeth, of the fibrous connective tissues, including the cartilage and bones, and even of the muscular and nervous tissues. Under such circumstances the primary object must be the restoration of the protoplasm to its normal status by the removal of the specific influence, not by the employment of any special articles of food, but by special medicinal and hygienic agents. It becomes the duty of the dental practitioner, therefore, to familiarize himself with the protean manifestations of this diathesis as presented in both parent and child, so as to be able by advice, at least, to save a child yet unborn not only from an imperfect development of the teeth, but of other tissues as well; or, failing to do this, to arrest pathological changes as speedily as possible. What has been said of this diathesis is true for all others which leave traces of their presence in peculiarities of the teeth.

There is probably no condition of malnutrition in which particular articles of food containing specific nutritive principles seem more pointedly indicated than that characterized by softening and distortion of the bones and the early decay of the teeth, and which is known as rickets. Here as anywhere lime-carrying foods seem to be the one desideratum, and yet a careful study of this condition soon discloses the fact that the disease is maintained not so much by a want of special articles of food, as by an inability on the part of the protoplasm to assimilate the nutritive

materials furnished it, in consequence of its impairment by extraneous forces.

A brief account of the symptoms and pathology of this disease will make this fact apparent. It usually makes its appearance about the sixth or eighth month of infantile life, less frequently from the eighteenth to the twenty-fourth month, rarely after the second year. In some instances digestive disturbances precede the manifestation of bone lesions. Farinaceous articles of food are imperfectly digested, give rise to acid products, chief of which appears to be lactic acid. Tenderness of the body, slight febrile disturbances at night, profuse sweating about the head and neck during sleep, are symptoms generally present. About the same time changes in the bones are usually noticed. Nodular enlargements may be distinctly seen in the ribs at the junction of the bones with the sternal cartilages, the shafts of the bones become soft, the vertebræ share in the same process, and, in consequence, more or less distortion in the conformation of the thorax takes place. The articular ends of the long bones undergo enlargement at the junction between the shaft and epiphysis; the shaft also softens. The flat bones of the skull become thickened and softened. To mechanical causes, such as the weight the body and the play of muscles, all the distortions characteristic of this disease are due.

The changes in the bones of the head and face are particularly interesting. The skull is enlarged; antero-posterior diameter is increased; the fontanelles remain open long after the normal period of closing; the parietal and frontal bones are thickened at their centers, forming prominent bosses; ossification is imperfect; the forehead becomes broad and prominent and out of proportion to the face, a condition which is exaggerated by an arrest in the growth of the facial bones, particularly the superior maxillæ and the malar bones. The inferior maxilla is peculiarly modified. The normal curve disappears, the anterior portion becomes flattened; at the situation of the cuspids it bends abruptly backward at a sharp angle, which has been attributed to imperfect growth of the middle portion of the bone. If a section of a long bone be made, evidences of hypertrophy present themselves. The narrow zone of proliferation between the shaft of the bone and the epiphysis, instead of presenting the usual reddish-gray appearance, is greatly enlarged, bluish in color, thickened to the

extent of half an inch, and much softer in texture. The line of ossification is irregular, spongy, and more vascular than in the normal condition. In the shafts of the long bones and on the surfaces of the flat bones a similar hypertrophy exists. The proliferating layer of the periosteum is preternaturally enlarged. The shaft of the bone is covered by a layer of spongy material resembling decalcified bone. Here also the newly-formed tissue is excessively vascular. In this new tissue are found all the evidences of the preparatory stages in ossification, but the decomposition of lime is not followed by assimilation and the perfect formation of bone. The fault appears to be due to an imperfection in the activity of the protoplasm, and indicated by a want of assimilative and retentive power. In addition to these changes in the skeleton, various alterations in structure are found in nearly all the viscera of the body, indicative of some profound defect in the nutritional process.

Various theories have been advanced in explanation of this disturbed nutrition of bones, but none are satisfactory. Among these may be mentioned that which presupposes the presence of lactic acid in the blood in excess, produced by the fermentation of starchy foods in the alimentary canal. The acid circulating in the blood holding the lime in solution prevents its deposition. This, however, is purely theoretical. The inflammatory theory is also without any basis. The highest authority on the pathology of rickets, Professor Kussowitz, believes that the primary lesion is the hyperemia of the cartilage, bone, and periosteum, dependent upon an increase in the size of the blood-vessels. This increased vascularity disturbs the normal nutritive process, and as a consequence the cartilage-cells rapidly proliferate, the surrounding substance becomes softer, and the bone lacks firmness and solidity. The same authority has demonstrated experimentally that a defective deposition and assimilation of lime-salts follows a hyperemic condition. Not only does the increased vascularity interfere with the assimilation of the lime-salts, but favors the absorption of that previously deposited, so that a previously deformed bone will in a short time become soft and flexible. Coincident with these changes in the bones, similar changes are taking place in the areas of tooth-development. Not only are structural changes manifested in the superior and inferior maxillæ, but also in the

teeth. The normal process of dentition may be arrested, and, if the disease develops before the eruption of the teeth, it may be indefinitely postponed. If some few teeth have appeared, further development is delayed. Those teeth which have made their appearance are defective in chemical composition, the relative proportion of organic and inorganic matter is disturbed, the dentine is soft, and the enamel imperfectly formed. Partly owing to the acid fermentation in the stomach and the activity of mouth-bacteria, these teeth speedily decay, become black, and drop from the alveolar process. There is in the majority of cases a hyperemic condition of the alveolar process which stimulates scurvy, and is similar to the hyperemia in the bones. The causes of this profound disturbance in general nutrition are various and complex. Want of sunlight, impure air, prolonged lactation, starchy foods, indiscriminate indulgence in eating, constitute a combination of causes which in a feeble constitution will develop the rickety condition.

The treatment of rickets must be both prophylactic and curative. If the mother, during the period of pregnancy, suffers from the tubercular diathesis, chronic diarrhea, suppuration, or any exhausting or depressing ailment, the greater the likelihood of a transmission of impaired nutrition to the child, resulting in an imperfect development of bones and teeth. After birth, all known factors provocative of the disease should be eliminated. The mother's milk should be examined, and, if defective, cow's milk or some of the infant foods substituted. Fresh air, daily baths, and frictions with sweet oil are indicated.

Of all foods, none has taken so high a rank as cod-liver oil. When the depressing influences are removed, a marked improvement is at once observed after its administration. Phosphorus has been highly recommended by many practitioners. Lime-water, the syr. ferri iodidi, and arsenic are also useful. As the child advances in years, all that is required is a continuance of improved hygienic conditions and a plain, generous diet. Bearing in mind the fact that the malnutrition of the teeth is but a single manifestation of a disturbance in the general nutrition, and that the imperfect calcification is not due so much to an imperfect lime-supply as to a want of assimilative power on the part of the protoplasmic basis of the teeth, it does not seem that a

search after a special food is in accordance with the right therapeutic method. The above statement is borne out by the fact that in many rickety children the urine contains an excess of phosphates.

A similar, though of course not identical, loss of lime from the bones and teeth is witnessed in pregnant women. The rapid growth of the young child necessitates a large food-supply. For this purpose the blood vessels of the uterus and associated parts undergo an excessive hypertrophy, the influence of which is felt in the most remote portions of the body. The ossification of the foetal bones necessitates a large quantity of lime. In well-nourished women with good digestion, this is furnished partly by the food and partly by the mother's tissues. But inasmuch as many women suffer during the period of pregnancy from extreme gastric disturbances, both their food-supply and assimilative powers are diminished. Under such circumstances the tissues of the body yield up their nutritive materials for the growth of the embryo. The bones, through a process of vascular absorption, part with a portion of their lime-salts. The pelvic bones and the vertebræ are frequently the first to suffer, though the entire osseous system may become more or less involved. The teeth experience similar changes. The blood-vessels of the pulp, in virtue of their absorptive power, impair the integrity of the chemical union of the lime-salts and the organic dentine, and in consequence the former are carried away and the latter decalcified. It is conceivable that under such circumstances the enamel might feel this absorptive influence and part with some of its lime, more especially from its under surface, and thus become thin and easily fractured. Should there be abrasions of the enamel, permitting the entrance of micro-organisms, the partially decalcified dentine would undergo speedy disintegration. With the birth of the child and the re-establishment of the digestive functions, a recalcification of the bones takes place, and they return to their normal condition of solidity. Could the teeth be kept free from the destructive action of bacteria, and the strain and pressure incident to mastication, they also, there is every reason to believe, would return to their normal condition of calcification upon the ordinary diet to which we are accustomed, and without reference to any special class of lime-bearing foods.

Journal of the British Dental Association for May, 1895.

J. H. Badcock, M. R. C. S., reports a case of marked discoloration of a left upper central incisor otherwise sound. The patient, while playing foot-ball some months previous, had the tooth struck and partly displaced backwards. It grew back to place, and beyond the discoloration, which was most noticeable towards the cutting edge, no trouble was experienced.

Dr. Badcock had no difficulty in diagnosing a dead pulp, and proceeded to open the pulp cavity so as to clean it and thus prevent further staining and avert a possible abscess. To his astonishment he found the pulp alive, but as he had gone so far he killed it. There was much difficulty in clearing the root, as there was a great deal of secondary dentine in that part of the pulp chamber which occupied the crown of the tooth, while the root canal was free. Probably the pulp was severely injured, if not severed by the blow, and this injury was greatest at the point where the pulp enlarged in the crown and where most resistance would be offered to a pull. This caused immediate extravasation of blood and subsequent formation of secondary dentine by the irritated pulp. Gravitation accounts for the staining being greatest near the tip. The case is interesting as showing that serious discoloration is not an infallible sign of dead pulp.

The Dental Review for May, 1895.

"Mercury," by J. W. Whipple, D. D. S., St. Louis, Mo.; read before the St. Louis Dental Society. The writer says that mercury is one of the most remarkable substances to be found in the whole realm of nature, and that he is tempted to assert that it is the most important of all substances used by the dental profession, and the one with which they could least afford to dispense. While some doubt the value of bichloride of mercury as a germicide and disinfectant, when the intensely poisonous nature of this compound of mercury is considered, no reasonable doubt of its efficacy can be entertained. It will not only, in its various strengths, destroy all germs of every character, but it will also play havoc with perfectly healthy tissues, so, because of the latter reason, something else should be used in its stead in the oral cavity.

Cleanliness is the one great foe of all diseases, whether it be typhoid fever, diphtheria, or dental caries, and uncleanness is the one great cause of all diseases of every character. Therefore, it is better to keep germs out of the mouth than to allow them to grow there and then try to get rid of them. Bichloride of mercury is very good to sterilize all instruments. If, as is said, one and one-half tons of gold foil are annually consumed in the United States in filling teeth, probably fifteen tons of amalgam are used in the same time and way. To prepare this for use requires from three to five tons of mercury. Not to discuss the amalgam question, but amalgam is probably, to-day, preserving ten times as many teeth as gold and all other filling materials combined. Mercury has probably no deleterious effects upon the human organism. It has no affinity for either tooth structure or the fleshy parts of the human body, but it has the greatest possible affinity for tin and silver. In cases of mercurial poisoning the metal collects in the joints of the human body, but this is a mechanical collection, just as it may sometimes be squeezed out in globules in the region of the sublingual ducts by pressure upon the parts with a teaspoon. Silver plates have been destroyed by mercury where persons had been salivated by its immoderate, even criminal use, by physicians. It will therefore leave the soft tissues of the body to unite with metallic silver, and it seems absurd to suppose that it will, of its own free will and accord, leave an amalgam filling with which it has become incorporated, both chemically and mechanically, in a fixed and definite proportion by crystallization and loving affinity, and seek a new abiding place either in bone of tooth or flesh of body. Amalgam fillings will oxidize on all their surfaces, but the oxides formed are small in quantity and harmless in nature.

The constant attrition of the opposing teeth may cause a slow grinding away of the filling and some think that this may sometimes cause ptyalism. Mercurial salivation is caused much more rapidly and certainly by the administration of infinitesimal quantities given frequently, than by larger amounts. If ptyalism could be caused by such means as the wearing away of amalgam fillings, the result would inevitably be that, in this day of the free and constantly increasing use of such fillings, cases of mercurial salivation would become more and more common. But such is

not the case, and cases of ptyalism are very rarely met with now. Cases have been reported where ptyalism has been found in conjunction with the free use of amalgam fillings in the mouth, but these may have been only coincidences. A patient may be coincidentally salivated by the administration of blue mass or calomel, even without his own knowledge, as apparent cases of ptyalism have been met with which were really not caused by mercury at all, and it is doubtful if one case of mercurial salivation can be proven positively to be the result of the use of amalgam fillings.

Vulcanized rubber worn as a base for artificial teeth is doing ten times as much good for humanity as gold and all other bases combined. While black rubber is freely used by the better class of men in large cities, there are probably nine plates of rubber containing mercury as a coloring material in use to one of the black variety. The principal objection to rubber plates has been that they caused the so-called "rubber sore mouth," and that the main agent in causing this trouble was the mercury contained in them. What has been said in regard to mercury in amalgam fillings applies with equal or greater force here. Rubber sore mouth is usually confined to the surface covered by the plate, and usually, too, to only a small part of that surface; in the region of the borders of the air chamber, and across the rear line of the plate where it crosses the harder part of the hard palate, near the centre of the arch. Mercury does not cause disease by mechanical irritation. If so, the globules sometimes to be found in the soft tissues would surely cause a condition in the adjacent parts similar to so-called rubber sore mouth. This disease would also show itself in other and distant parts of the body, since mercury always causes a constitutional disturbance. Rubber sore mouth is a myth. The same condition of disease is frequently seen under black rubber, celluloid, and twenty carat gold plates. It is caused by badly fitting plates which move from side to side in the mouth and irritate the the parts. This is aggravated by the rough surfaces of the inner side of the plate, and in all cases is caused more or less by the carelessness and uncleanness of the wearer.

"Porcelain Work in Dentistry," by G. W. Schwartz, M. D., D. D. S., Chicago, Ill.; read before the Odontographic Society of Chicago. Dental furnaces have been so simplified in the last few

years that dentists can do operations in porcelain which would otherwise be done in gold or rubber, and some work not done at all. All work done in conspicuous parts of the mouth should be concealed; sometimes gold bicuspid crowns look as unbecoming as though they were placed on the central incisors. Porcelain crowns can be made for bicuspid teeth as easily as for incisors and cuspids, and for practical purposes they are as strong as any crown work done.

While dentists unfamiliar with the baking of porcelain regard its chief feature as the making of inlays, they are the smallest part of the porcelain work. The only places where inlays should be given the preference are in cases exposed to front view, where the cavities can be so shaped that direct access can be had for taking impressions of the cavity in thin platinum, for making the matrix in which to bake the inlay. Cases most favorable for this class of work are the labial surfaces of the anterior teeth; buccal cavities on the bicuspids and molars, in cases where it is impossible to get the rubber dam on, and others where the cavities are so sensitive that extensive preparation cannot be endured by the patient. Cases where there has been a recession of the gum, with a cavity on the labial surface of an anterior tooth, can be nicely done by making an inlay and restoring the lost portion of the gum in gum enamel. * * It is a rare thing to see porcelain fillings which are as consistent with the accepted theories of preserving carious teeth as if those same teeth had been properly filled with metal fillings. In speaking of fillings, fillings in the back part of the mouth are meant, not porcelain restorations for anterior teeth, and inlays.

There is no more artificial looking work done on the natural teeth than crown work as it is commonly done at the present time, yet crown work is the most important part of porcelain work. It can be applied to nearly every case where any other crown work can, and to a number of cases where other work cannot. Any style of crown one chooses to make can be made by the dentist who bakes them himself. The crown the writer uses most for incisors and cuspids is one made of a porcelain veneer baked to a platinum cap, and the method he employs in constructing it is as follows: For a central, lateral or cuspid, after having tooth prepared, take the measurement in the usual way; then cut a strip of

platinum No. 30 to 32 gauge, the necessary width, and a little longer than the measurement; then lap to the exact measurement and solder with pure gold, festoon and fit to the root, mark the back, and trim out to the original shape of tooth. Solder a platinum backing to this about 28 or 30 gauge. Now grind the front of this cap as thin as possible with a corundum wheel, and burnish it down to the tooth. This cap must be so shaped that it will mechanically retain the porcelain when baked to it. After having the cap completed, which is the most important part of the crown, select a porcelain tooth the correct shade and size, which is ground to a thin veneer. After having first baked some body to the platinum cap, then bake the veneer to the cap which completes the crown.

For bicuspid use a different method. Having shortened the tooth to about one-half or one-third its length, with its buccal wall beveled to the center, fit a platinum band to it about the length of the original tooth. Then cut the buccal wall of this band in narrow strips to about a line or two from the gingival margin. These strips are to be burnished down to the shape of the prepared root. Solder these strips together with pure gold to hold them in place and to give the cap some stiffness. The articulating end of the cap is then trimmed until it is about two-thirds the length of the original tooth. Then proceed to build body on this cap to reproduce the shape of the tooth to be supplied, and bake it. If desirable, porcelain veneers can be used in bicuspid as well as in other cases. The advantage of this crown work over other kinds is, teeth can be crowned over live pulps. Also in some cases where there has been some recession of the gum, a restoration can be made with gum enamel to give the proper length and natural appearance.

Porcelain bridges adjusted to cases where the bite is short and overlapping generally prove unsatisfactory. Bad results have come in cases where facings have been baked to platinum backings. The force of mastication has fractured the porcelain from the backings, and left nothing but the backing and abutments. Porcelain bridges, to be strong, should usually be made with a saddle, and porcelain baked to it. In cases where recession of the gum has progressed to some extent, bake gum enamel to the teeth to be supplied and restore the lost gum, then proceed in the

usual way of bridging. Small spaces can be bridged very well by soldering plate teeth to a platinum bar and baking porcelain on it to restore contour and give the correct masticating surface. Much care and judgment must be used, for a porcelain bridge of three teeth will not be as strong as three crowns, because a root will often move enough in its socket to prevent a porcelain crown from breaking; when it would not withstand the strain in a fixed position on a bridge.

In all the cases described the writer uses high grade body, which requires a greater degree of heat than the bodies used by many for crowns, inlays, etc. The bodies which fuse at low temperature get that quality by having glass as an ingredient, and they are not as strong as high grade bodies.

One Reason for the Preponderance of Nervous Diseases.—One of the principal reasons, in my opinion, for the enormous increase of nervous diseases, is to be found in the management and rearing of the infant as now and for some time past practiced, especially in the average American families.

It is almost a universal fact that from the hour of its birth to the hour of its maturity the American human infant is constantly subjected to a course of stimulation, so far as the nerve centers are concerned. The young parents, and the older ones, as well as the grandparents and uncles and aunts, each and all are so anxious to have the baby a smart, cute little thing, that every device that can be thought of is resorted to in order to stimulate the child's mental faculties and to have it notice objects as soon as possible; and here let me say that I really believe in some instances they have succeeded in developing that faculty as early as the first few days of life. As it grows older, it is urged by every means known to humanity to talk, to give expression to its thoughts in any possible way or form; and by the time such an infant is four or five years old its nerve centers have been so fearfully developed and overstimulated that it is quite possible for it to give expression to opinions and ideas which would compare favorably with those of maturity. This condition of things is made to ramify every channel of life which it is possible to bring before the infant; and such conditions are continued until the child degenerates into hopeless lunacy from overstimulation, or else "becomes its own master," as the saying is. When such an infant has reached its majority and maturity, it usually comes before the world with a nervous system already wrecked by having been overstimulated and developed, and therefore unable to stand the strain usually demanded from a healthy, well-balanced system.—A. M. Beers, M. D., in *Columbus Med. Jour.*

Letters.

A CRITICISM FROM NEW YORK.

NEW YORK, June 19, 1895.

Dr. J. N. Crouse.

DEAR SIR:—Through you, I believe, The Dental Protective Association was organized. So far good. All of us who are members of the same think we know all about its purposes. Now is there another business of a private character growing out of this organization? If so, who are these men that have quietly got together and are trying to reap a personal gain through the influence of the Dental Protective Association?

You will pardon me for showing so much ignorance in this matter; I live in this out of the way place, the City of New York. Before I send in an order of any kind I must know something about this matter.

Most respectfully,

HARVEY D. ALLEN.

A REPLY TO THE CRITICISM.

Chicago, June 23, 1895.

Dr. Harvey D. Allen, New York City,

DEAR DOCTOR:—Your letter of inquiry is before me. I have already explained very fully in a reply to a letter from an honest inquirer, much that I would write you now. As you have evidently not read this, to save time I refer you to it in the April number of THE DENTAL DIGEST for a part of my reply to yours. You do know who organized the Protective Ass'n., and you seem to think that all its members know all about its purposes. I am quite sure that you are mistaken in this. It cannot be possible that all or even a considerable number of the members know about its purposes, what it has already done, or what it intends to do. For if they understood much about it, they would give their active co-operation and a much heartier support. Take your own case. What have you done to aid the movement? On referring to the record I find that you have paid

SIO and signed the by-laws. In return how much has it saved you from annoyance and expense? Did you ever make an investment which yielded greater returns? Think for a moment what our condition must have been but for this Association and then tell me if I am getting the support from the members which the results warrant. When you think what has been accomplished bear in mind that it is the result of great sacrifice, besides time, care and anxiety, given freely and with no money compensation. While the members and the profession at large have been entirely free from the annoyance of patent sharks and claimants, I have been giving up all my recreation and much valuable time besides to accomplish these results. Do you believe me? If you know anything you know that this is true and can easily be proven. It is very distasteful to me to speak of my self-sacrifice, I have carried these cares now for over eight years, and would not mention my part in it now but for such letters as this of yours.

As you close you speak for all as knowing the purposes, but I imagine I hear some of that "all" asking what is wanted of them. As a large proportion of the dentists have never joined with us, I want every member to enter into the work of getting the respectable members of the profession to join the Association at once, and thus save us from the necessity of making the assessment provided for in the by-laws. Next, I want all those who have not already done so, to aid us by subscribing for the DENTAL DIGEST, and by getting others to do the same. I make this part of the request because this journal has been started as the official organ of the Association. While the Association is not made responsible in any way for it financially, the work of the Association is more easily made plain, the expense of sending out circulars avoided, the profession reached more effectually, and this, as our organ, is bound to be a great aid in many ways. I am in hopes the members will help me in this part of the undertaking, as I am sure the journal will be the means of bringing about many reforms and will greatly strengthen our cause. I have here explained at some length what you said all understood, and which I knew was not more than half understood, and that only by a very few members. Now Doctor, earnestly, am I not right?

Now as to your inquiry, "Is there another business of a private

character growing out of this organization? If so, who are the men that have quietly got together and are trying to reap a personal gain through the influence of the Dental Protective Association?" I have no knowledge of any such state of affairs. Living in that out of the way place, New York City, you may not have heard of the organization of the Dental Protective Supply Co., so for part of my reply to this query I will refer you to the front pages of the January DIGEST, headed, "To the Dental Profession." No, Doctor, there are no individuals who have quietly gotten together and are trying to reap a personal gain from the reputation of the Protective Association. The Supply Co. was primarily organized to get those who had not already joined the Association to do so by giving all members such financial advantages in purchasing supplies that no one could afford to hold aloof; and secondarily to do away with the patent abuse on manufactured articles. I personally undertook the responsibility of organizing the Company with the expectation that enough members of the Association would see the feasibility of the plan to furnish the additional necessary capital that I did not give myself, and thus form a true co-operative association. Thus far I have furnished all the required capital, barring that taken by a very few in sums of \$1,000 and less. I have made the proposition, both in public and in writing, that I would furnish as much as all the other stockholders in the dental profession combined, provided that the profession would enter into such an agreement. And although I have been working at this for over two years, giving it the best and hardest efforts of my life, and am now about ready to open supply houses, fully equipped with *the best goods ever offered to the dental profession*, I still hold out that proposition and agree to do as much financially as the whole dental profession. And I agree to do this in the face of the fact that a few business men of my acquaintance offer to furnish all the required capital and to pay me for my services besides.

I see the needs of such a movement so clearly, and realize what it would accomplish for the profession so fully, that I am willing to make such a sacrifice as cannot be appreciated by those who do nothing for their profession, and usually act from selfish motives. The world is full of selfish and dishonest individuals

who never make any sacrifices, yet who never fail to reap any benefits they can from the efforts of others, and at times I am led to believe that the dental profession has its share of such people. Your information must have come from some such sources, or else from interested parties who wish to block this movement as they have all others which had anything in view but the further enslavement of the profession. As to the accuracy of my statements in this communication, and the feasibility of the plans I have worked out, I invite investigation. I should be glad to have the whole matter investigated by a committee of earnest, interested members of the profession, to whom I will explain all the details and then allow them to report their judgment.

Any further information you may desire I shall be glad to furnish, and believe me,

Yours very truly,

J. N. CROUSE.

LETTER FROM MISSOURI.

CANTON, MO., June 10, 1895.

To the Editor of the Dental Digest:

DEAR SIR:—According to my promise I send you the report of the case I told you about when at Galesburg. As you will see from the enclosed letter I saw the little girl the day previous to Dr. Brainerd, her physician. At that time there was an abscess on the left superior second temporary molar, which I opened with a lance, washed antiseptically, and told the patient to return the second day. Dr. Brainerd's report will give a better idea of the case. Hoping that this will be of service to the readers of the DIGEST, as it has been both sad and instructive to me, I am,

Yours truly,

J. F. WALLACE.

MONTICELLO, MO., Jan. 1, 1895.

DEAR DR. WALLACE:—In accordance with your request I will endeavor to give you the particulars concerning the sickness and death of the little girl we attended. Her father brought her to me on Nov. 4th, after seeing you on the 3rd. I found a greatly swollen left upper jaw and cheek, the latter so swollen that the left eye was entirely closed. The breath was offensive, the tongue

heavily coated, and a considerable of febrile symptoms. Her condition was so serious, and it being evident that the trouble was an abscess at the root of one of the upper molars, with systemic disorder therefrom, I advised the extraction of the tooth, thinking this would entirely end the trouble. On the 6th her father reported that the swelling was still increasing in face and jaw, and that the fever seemed higher. I prescribed an antiseptic wash for the mouth, antifibrine and quinine for the febrile movement, and warm fomentations externally for the cheek. On the 8th I saw the patient and found the swelling still increasing to such an extent that both eyes were closed. I then realized that it was a case of septicemia, and I continued the antiseptic washes, tonics, stimulants, and warm fomentations. On the 9th the symptoms seemed somewhat mitigated; 10th, condition unchanged; 11th, fever getting higher and uncontrollable; 12th, I opened an abscess in lower jaw just behind the last molar, tonsils highly inflamed, but trouble seemed to be yielding somewhat, could see out of left eye, drank milk and egg-nog; later on the 12th, symptoms more aggravated, chills and very high fever, temperature 105-105½; 13th, grew constantly worse all day, chills alternating with high fever, temperature 106. Patient died at 9:15 P. M.; temperature just before death 107.

This is a brief record of the case. Hope you will find it of interest. It was very interesting and instructive to me, and very sad.

Yours most respectfully,

Z. BRAINERD.

NEW YORK LETTER.

NEW YORK, June 18, 1895.

To the Editor of the Dental Digest:

MR. EDITOR:—Some things that have been occurring in Societies and Dental Journals of late whisper to us that they indicate the signs of our times. We have referred elsewhere in our letters to the new departure of legislation for correcting irregularities in the morals of dentists, our first notice of which appeared in the Connecticut law secured some two years since. So far we have not been able to learn the objects or the authors of such legisla-

tion. No one seems to be willing to make an open advocacy of the need of such a law; this attracts suspicion at once. To the surprise of many a law, or a bill for a law, was presented to the New York Societies for their approval; it was called "A Sanitary Law Legalizing the Use of the Cadaver in Dental Schools." There did not appear to be any opposition to this from the dentists, but when the bill came up at Albany there was discovered this additional clause for regulating the professional conduct of dentists.

A special meeting was called in Brooklyn just previous to the convening of the State Society in May, by the Second Dist. Society to protest against such silly legislation, and they resolved to go to the State meeting and use all their power for influencing the Legislature, then in session, against it. But a greater surprise came, for after much time spent in a wrangle by the State body during the first day of the session, the opposition all disappeared and the body voted in favor of the whole thing.

One person whom we knew wrote Gov. Morton urging him to veto the bill. In one letter he consented, but in a second one he said that, as the State body had voted in favor of it, he saw no way out but to concur. So the profession of dental practitioners in New York are now subject to an examination of their moral character by the Board of Regents, upon charges made by *unknown persons*. Coupling these proceedings with the article of Prof. Essig on the "Code" in the June No. of the *International*, and the editorial on "The Larger Dignity of our Profession," the whole matter seems to be emphasized. Where there is so much smoke there is reason for assuming that there must be no little fire. Now for the monkey that is going to poke the chestnuts out, but the law is so constructed that he cannot be known.

Some strange doings have been in vogue in societies, and in the face of all these things the query is, why do not our young men join the societies? We noticed a big stab into the body of the A. D. A. that cropped out in the discussion of Prof. Essig's paper. Few men of spirit can hardly be expected to have grace enough to smile complacently on the open charge of advertising, because he had advocated certain lines of practice. Prof. Truman's oily suggestion that it was the thought of a tired, sleepy member, is a righteous way of meeting such remarks. Many, yes

we think all earnest men have been similarly accused, and it is quite possible that there might have been a little of self in it. "If we don't blow our horns, we don't sell much fish."

If new ventures under new titles will refine our profession, there will be cause for gratitude. The more "Stomachology," we have, the more and better "Digestion," we trust. The Odontological Society of New York City has felt the need of two stomachs; nature has only one animal provided with two. Great interest will be evinced for the future of these Siamese twins attached to the parent body. If this class of society formation is for the purpose of advancing the interests of our calling, there is unusual activity along this line.

Of course all these bodies will be expected to send delegates to the National body. Under the circumstances it will be a marvel if there should be a harmony of interests. We could prophesy, but will not, for we don't think it will be long to wait before the results will be seen.

We turn gladly to something that is really refreshing, the article by Dr. Libby in the journal just mentioned. It is a real relief to have something so original as this article seems to be. We say, seems to be. The first dentist whose attention we called to the article, said, "I've done that." Well, we say this after reading it, we have long believed the operation practical, but have never done it, that is, not in his way. When, in our article in the *Cosmos* in 1870, we introduced the use of "Oval, Smooth-faced Fillers," it was said at once that our attempting to attach a piece of gold to a burnished surface was unphilosophical, yet we claimed that we had done it. Some of the most extensive contouring we have ever done was with these instruments. If we understand Dr. Libby's paper, he has made filling easy and very perfect. Every step in his paper is made definite, and he is entitled to much credit, for a clinic by him will be of fresh interest. The principle has long been in vogue, but this is decided progress. We have had so much threshing out of old straw that anything new enlivens our energies. Burnishers, however used, have the effect of applying the gold in a more perfect adaptation to the walls of the tooth. Dr. O. E. Hill, of Brooklyn, said years ago that a burnisher was one of the most valuable instruments we had. We can not overlook the fact that this instrument was what made the old

"stuff fillings" so tooth-saving years ago; it was what gave the virtue to the filling, often loosely and perhaps carelessly introduced. The power of the rubbing burnisher so closely applied the gold to the walls, and perfected the uncondensed gold so well, that it answers the query: Why did those "old fillings" save the teeth so many years?

In years soon to come we shall find ourselves returning to simpler methods, and then dentists will not have to spend so much of their own and their patient's time and energy when making fillings and doing other work. The principle so readily seen in the burs illustrated in the *DIGEST* is another recognition of a simple principle in excavating, and must of necessity secure a greater immunity from pain.

Not long since Mr. Williams called our attention to his ability to unite wet gold to the surface of the gold ingot by scraping the surface clean. He annealed the pieces, dropped them into a glass of water, and then readily attached them to the surface of the ingot. We suggested doing the same thing with burnishers, so we tried it, and with the same conditions were able to produce the same results. To be sure there cannot be anything practical in these results.

But here is a wise query: What is the scientific meaning of cohesion, as applied to the addition of one piece of gold to another? We do not think we have had a true definition of it as yet.

Cordially,

M. A. G.

DENTIST VS. PHYSICIAN.

CHICAGO, June, 1895.

To the Editor of The Dental Digest:

I have taken more than a passing interest in the Editorial Comments found on page 108 of the February number of *THE DENTAL DIGEST*, where reference is made to a correspondent of the *Pall Mall Gazette*—a physician—who "went so far as to say that a medical man should first be consulted as to the needs of attention to the teeth, and that a medical man was best qualified to recommend a dental surgeon to a layman."

I will cite a case which has bearing upon the subject. One morning last January, a young lady called at my office, suffering with facial neuralgia, left side. The soft tissues of her face from the median line to the left were much swollen, the left half of the upper lip was twice its normal size, and the left eye could not be opened fully on account of the swollen cheek. The patient was suffering a good deal of pain, and had passed many sleepless nights. She told me that their family physician had failed to give her any relief, but rather made her worse, and she tried another physician who did no better.

She inquired if I could help her out of her suffering. I examined the case carefully, at first seeing no cause for the unusual disturbance, but noticing the upper left first bicuspid was somewhat clouded, being darker than its neighbors, I suspected a dead pulp in that tooth as being the disturbing element, and decided to open into it. It contained a large amalgam filling, and upon inquiry as to her past experience with said tooth, she told me that her dentist in another part of the city had killed the "nerve" and removed it, and filled the tooth about three years ago. Although there was no soreness at all in the tooth as I discovered by several tests, I was firm in my convictions that more or less dead pulp in the canals was the disturber of her peace.

I burred through the filling and found two hollow root canals containing sufficient foul matter to account for her suffering. After cleansing the canals, and treating them as usual in such cases, I prescribed a cathartic and three doses of Fl. Ex. Gelsemium to quiet her nervous system, and told her to call in forty-eight hours. When she called the second morning the swelling had almost all disappeared, and she said she was entirely free from pain in about twenty hours after her first call upon me, and had slept well all of the night just passed. She was very grateful to the dentist, not the physician. After giving the tooth a course of treatment I filled the canals and crown, and there has been no recurrence of the neuralgic pains, nor any disturbance whatever.

H. A. CROSS.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

IS IT A SELFISH SCHEME?

Under this head we wish to call special attention to a letter sent us by one of the members of the Protective Association, and our reply to the same. The writer does not directly accuse us of attempting to make a personal gain out of the reputation of the Association, but he insinuates as much, which is more objectionable. As each month the writer has had the DIGEST sent him, wherein explanations and statements have been made which could not help but enlighten him, there are only two conclusions to be drawn. Either he does not read or make any effort to get at the facts in the matter, or else he is so blinded by his own prejudice and suspicion that he cannot see or understand an honest statement of the facts. As we have not his personal acquaintance we cannot decide which is the correct explanation. But as a very large majority of the dentists who receive dental journals do not read them, we hope that this has been the cause of criticism in this instance. We are sure there are logical reasons why some of the journals which have been coming to us from year to year are not read as a general rule, but this is another question which we may discuss later.

On the other hand, if our correspondent is blinded by suspicion or prejudice, then the case is a sad one; and the more so, as it represents a large element in the dental profession, who either because of stupidity, jealousy, or dishonesty cannot recognize or understand unselfishness on the part of others, but must assign mean motives for all such actions. Indifference and carelessness in not reading available matter, which if read would help the receiver, can be excused, and for that class there is yet much hope.

Even the stupid class must be tolerated, although we cannot hope to help them much or to get much from them. But what can be said concerning the other two classes named? Certainly the jealous person does a great deal of harm to himself and to society, while the dishonest one is usually found out and checked in his evil-doing. We believe, however, that the indifference in our ranks is causing much delay and hindrance in the onward march, and we get impatient as we wait for action on the part of members of the Association.

AN EXPLANATION.

In the April DIGEST we published a letter from Dr. Ross, with our reply to the same. The letter was a personal one and the correspondence would not have been published, but that we believed there were many others laboring under the same erroneous impressions as Dr. Ross was, and that our reply to him would answer many questions in the minds of these as well. We have every reason to believe that Dr. Ross' criticisms were but honest questions which have existed in the minds of others who did not speak out and ask for an explanation. Since then Dr. Ross has subscribed for the DIGEST and has offered to assist the good work in other ways, and we understand each other better.

We fully intended to make this explanation in the May DIGEST, but in the presence of other matters it was overlooked. We gladly make it now and in justice to Dr. Ross, trusting we have not injured him in any way, and that we may long be permitted to work together.

AMERICAN DENTAL ASSOCIATION.

The Annual Meeting of the American Dental Association will be held at Asbury Park, New Jersey, commencing Tuesday, August the 5th.

Arrangements for this meeting are under way and a rate of one and a third fare for the round trip has been secured over most of the railroad lines. A full and complete program of the meeting will soon be sent all journals for publication.

Notice has not yet been received from the College Faculty Association nor the National Board of Dental Examiners as to date of their meetings, but we presume they will be held the Saturday and Monday before the meeting of the Association.

J. N. CROUSE, *Chr. Ex. Com.*

THE TRI-STATE MEETING.

The dental meeting which was held last week at Detroit under the above name, and which included the dentists of Michigan, Indiana and Ohio, was one of the best which it has ever been our good fortune to attend. With the exception of the Dental Congress held during the World's Fair, we have never seen such a body of dentists together. We do not know the exact number present, but should say there were about five hundred, composed of the members of the three state societies and a good attendance of visitors. The program had been well arranged by the executive committee, and the meeting differed from most meetings of its kind, in that the hall was too small to accommodate those present. The papers were excellent, but there were so many of them that it left none too much time for discussion by the many who were there, loaded with wisdom and ready to improve every moment.

The social features surpassed anything we have ever seen. The afternoon of the third day was given up to a steamboat excursion to St. Clair Island, where supper was served. This feature of the meeting was well planned and managed by the committee of arrangements, headed by Dr. Geo. L. Field, who always knows how to make such affairs a success. He was justly made the recipient of a present, in the form of a beautiful mounted mirror, given as a slight token of the appreciation of his friends for his part in the meeting. Our friend Field was taken entirely by surprise, and was so overcome that he was hardly able to respond to the very appropriate remarks offered by Dr. Barrett, who was chosen to make the presentation; and we never heard Barrett do so well.

We think that all who attended the meeting came away with a much higher opinion of the dental profession than ever before;

certainly, we were very much impressed, and felt proud and happy to be among so many intelligent and agreeable friends. Is it not just possible that we have gotten into a rut in the way our dental meetings are conducted, hence the meager attendance as well as lack of enthusiasm and interest? Since this new departure has proved to be such an overwhelming success, why not try the plan elsewhere?

Book Reviews.

WORLD'S HISTORY AND REVIEW OF DENTISTRY. By Herman Lennmalm, D. D. S. W. B. Conkey Company, Chicago, 1894. Octavo, pp. 420.

This work could hardly be called a history or review of dentistry, as the historical part is contained in a few pages which briefly mention some important events of dental history. The greater part of the work is a compilation of the laws regulating the practice of dentistry in the principal countries of the world. Data respecting dental colleges and dental periodicals are also given. The book is interesting and valuable as a reference for dental laws, colleges, societies, and periodicals.

Notices.

INTERSTATE DENTAL MEETING.

The committees appointed by the State Associations of Iowa, Nebraska, Colorado, Kansas and Missouri to arrange for the Interstate Dental Meeting, to be held at Excelsior Springs in May, 1896, will meet at Pertle Springs, Mo., July 10, 1895. A full attendance is desired.

J. P. ROOT, Chairman Gen. Com.

S. C. A. RUBEY, Secretary, Clinton, Mo.

ILLINOIS STATE DENTAL SOCIETY.

The thirty-first annual meeting of the Illinois State Dental Society was held at Galesburg, May 14 to 17, 1895. About 200 were in attendance. The

following named persons were elected officers for the ensuing year: President, Walter A. Stevens, of Chicago; Vice-President, C. R. Taylor, of Streator; Secretary, Louis Ottofy, of Chicago; Treasurer, Edgar D. Swain, of Chicago; Librarian, J. R. Rayburn, of Fairbury; Chairman Executive Committee, W. A. Johnston, of Peoria. The next meeting will be held at Springfield, May 12 to 15, 1896.

LOUIS OTTOFY, Secretary,
Masonic Temple, Chicago.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of this body will be held at Asbury Park, N. J., on Saturday, August 3d, at 10 o'clock A. M. It is very desirable that all the colleges having membership be present promptly at that hour, as much important business will be before the Association, and the time allotted is usually short for the work to be done.

The Executive Committee of the Association will meet on Friday previous at 10 o'clock at the same place. All business for that committee should, so far as possible, be in their hands before the meeting, in order that there be no delay.

J. TAFT, Chairman Executive Committee.

LOUIS OTTOFY, Secretary, Masonic Temple, Chicago.

AMERICAN DENTAL ASSOCIATION MEETING.

The Local Committee have arranged with the following hotels and houses for the session of the American Dental Association, commencing Tuesday, August 6, 1895.

The "Coleman House," fronting the ocean, the largest hotel in Asbury Park, rates from \$3.50 to \$4.00 per day, with the use of the ball-room during stated periods of the day and evening for large committee meetings and sections. The "West End" Hotel, a first-class hotel opposite the "Coleman House," rates from \$2.50 to \$3.00 per day, with the use of ball-room at stated periods for committees and sections. The "Ocean Hotel," next door to the "West End," capacity 900, first-class in every respect, rates based on 100 or more Dental Convention guests at \$2.50 to \$3.00 per day, with the use at stated periods of small parlors for committees. The "Hotel Brunswick," near the ocean, first-class in every respect, rates from \$3.00 per day up, and \$20.00 per week up. This hotel has a series of small parlors on the main floor for committees and private receptions, the use of same based on number of Dental Convention guests at the hotel.

In the large hotels the use of the rooms for committees and sections is based on the contract of a certain number of guests, therefore the selection of a room ahead in some hotel is necessary; July 15th is the time the hotels would like to know.

In the small hotels, the "Grand Central," rates \$1.50 to \$2.50 per day, and \$14.00 to \$16.00 per week. The "Ashland," \$2.00 per day and \$8.00 to \$12.00 per week. The "Portland," \$2.00 per day, and \$8.00 to \$10.00 per week. The

"Edgemere Inn," \$2.00 to \$2.50 per day, and \$12.00 to \$20.00 per week. The "Neptune," a nice quiet place, \$1.75 to \$2.00 per day, and \$9.00 to \$20.00 per week. The "Albany," \$2.00 per day, and \$8.00 to \$20.00 per week. The "Clifton," \$2.00 per day, and \$15.00 per week. The "Strand," \$2.00 per day, and \$10.00 per week.

The committee will have an attendant at the Auditorium from July 27th to August 9th, to give information in reference to hotels, and other information to the enquiring members. The trolley cars run direct from the depot to the Auditorium. A map of Asbury Park, with the cuts of the hotels and the Auditorium, will appear in the N. J. programme, which will be mailed to every member of the American Dental Association.

CHAS. A. MEEKER, Chairman;
C. W. F. HOLBROOK,
C. S. STOCTON, Local Committee.

COMMITTEES FOR SOUTHERN DENTAL ASSOCIATION.

DANVILLE, VA., June 24, 1895.

Editor Dental Digest:

DEAR SIR:—Please find below list of Committees for Southern Dental Association for this year's meeting, to be held in Atlanta the first of October next. Please kindly publish if you have space.

Officers of the Association.—H. E. Beach, Clarksville, Tenn., President; J. S. Thompson, Atlanta, Ga., First Vice-President; L. P. Dotterer, Charleston, S. C., Second Vice-President; R. D. Seals, Fort Smith, Ark., Third Vice-President; H. A. Lowrance, Athens, Ga., Treasurer; E. P. Beadles, Danville, Va., Corresponding Secretary; S. W. Foster, Atlanta, Ga., Recording Secretary.

Committee on Arrangements.—Frank Holland, Atlanta, Ga., Chairman; C. T. Brockett, Atlanta, Ga.; J. A. Thornton, Atlanta, Ga.

Committee on Operative Dentistry.—W. J. Barton, Paris, Texas, Chairman; W. T. Arlington, Memphis, Tenn.; E. Wagner, Montgomery, Ala.; R. A. Bullington, Memphis, Tenn.; J. Rollo Knapp, New Orleans, La.; U. D. Billmyer, Chattanooga, Tenn.; William Crenshaw, Atlanta, Ga.

Committee on Prosthetic Dentistry.—R. R. Freeman, Nashville, Tenn., Chairman; R. K. Luckie, Holly Springs, Miss.; C. L. Alexander, Charlotte, N. C.; J. R. Dodge, Douglass, Ga.; George Evans, New York, N. Y.; W. H. Marshall, Oxford, Miss.; W. G. Browne, Atlanta, Ga.

Committee on Dental Education.—Gordon White, Nashville, Tenn., Chairman; M. F. Finley, Washington, D. C.; J. W. Boozer, Columbia, S. C.; D. N. Rust, Alexandria, Va.; W. E. Walker, Bay St. Louis, Miss.; G. M. Rousseau, Montgomery, Ala.; A. W. Harlan, Chicago, Ill.

Committee on Hygiene.—J. H. Durham, Wilmington, N. C., Chairman; B. D. Brabson, Knoxville, Tenn.; L. M. Cowarden, Richmond, Va.; W. J. Morrison, Nashville, Tenn.; T. M. Hunter, Fayetteville, N. C.; J. N. Jones, Jacksonville, Fla.; C. S. Stockton, Newark, N. J.

Committee on Pathology and Therapeutics.—T. H. Parramore, Hampton,

Va., Chairman; I. N. Carr, Tarboro, N. C.; G. J. Fredericks, New Orleans, La.; E. G. Quattlebaum, Columbia, S. C.; T. P. Hinman, Atlanta, Ga.; J. C. Wilkerson, Selma, Ala.; J. H. Marshall Chicago, Ill.

Committee on Histology and Microscopy.—A. G. Fredericks, New Orleans, La., Chairman; J. Taft, Cincinnati, Ohio; C. V. Rosser, Atlanta, Ga.; James Chace, Ocala, Fla.; E. S. Chisholm, St. Louis, Mo.; J. H. Harris, Baltimore, Md.; W. C. Klatte, Charleston, S. C.

Committee on Chemistry.—L. D. Carpenter, Atlanta, Ga., Chairman; A. A. Dillehay, Meridian, Miss.; S. P. Sharp, Knoxville, Tenn.; R. C. Young, Anniston, Ala.; L. Augspath, Little Rock, Ark.; Morgan Adams, Sardis, Miss.; D. R. Stubblefield, Nashville, Tenn.

Committee on Literature and Voluntary Essays.—M. C. Marshall, Little Rock, Ark., Chairman; W. W. H. Thackston, Farmville, Va.; G. F. S. Wright, Georgetown, S. C.; Francis Peabody, Louisville, Ky.; H. W. Morgan, Nashville, Tenn.; E. L. Hunter, Enfield, N. C.; W. H. Cook, Denton, Tex.

Committee on Publication.—S. W. Foster, Atlanta, Ga., Chairman, *ex-officio*; L. G. Noal, Nashville, Tenn.; B. H. Catching, Atlanta, Ga.

Committee on Appliances and Improvements.—H. J. McKellops, St. Louis Mo., Chairman; George Eubank, Birmingham, Ala.; G. S. Staples, Sherman, Tex.; F. H. McAnnally, Jasper, Ala.; W. T. Martin, Yazoo City, Miss.; C. Still, New York, N. Y.; I. N. Wills, Savannah, Ga.

Master of Clinics and Chairman of Clinic Committee.—S. B. Cook, Chattanooga, Tenn.

Yours very truly,

E. P. BEADLES,

Corresponding Secretary Southern Dental Association.

News Summary.

A Correction.—The formula on p. 297 of the May DIGEST should read, Oil Cassia 1 dr., instead of 1 oz.

Personal Notice.—At the commencement exercises of Lake Forest University, held a fortnight ago, the honorary degree of LL. D. was conferred upon Dr. Truman W. Brophy. This is a most worthy distinction and one of which the dental profession may well be proud.

The Death Rate.—It has been computed that the death rate of the globe is 68 per minute, 97,790 per day, or 35,717,790 per year. The birth rate is 70 per minute, 100,800 per day, or 36,817,200 per year, reckoning the year to be 365¼ days in length.—*Scientific American*.

Gum Boil.—A periodontitis may frequently be aborted by painting the inflamed gums several times a day with a mixture of tincture of Iodine and tincture of Aconite, one drachm each, and Chloroform and tincture of Benzoin, each fifteen minims.—*The Practitioner*.

Obituary.

REPORT OF COMMITTEE APPOINTED BY THE NEW YORK ODONTOLOGICAL SOCIETY TO DRAFT RESOLUTIONS RESPECTING THE DEATH OF DR. ARNOLD C. HAWES.

Your Committee do respectfully report as follows:

On the seventh day of April last, Dr. Arnold C. Hawes, one of the earliest and most esteemed members of this Society, entered into his final rest.

Soon after the formation of the Society he was elected an active member, and so continued until he retired from practice and took up his residence at his country seat in Connecticut. He then tendered his resignation and was made an honorary member.

Dr. Hawes was one of the founders of the First District Dental Society; its first Vice-President, and second President. He was one of the original members of the American Dental Association, and for a time served as Treasurer of that organization.

Dr. Hawes was one of the most prominent and best respected members of our specialty; a man of sterling integrity, with generous impulses and candid manners. He was much interested in the work of our professional associations, and especially so in this, his favored Society. He was also an occasional contributor of articles for our dental journals.

Most of the gentlemen present will remember his ever genial, smiling face and the warm grasp of his friendly hand. He was a model of good nature, winning the respect and love of all who knew him. You will perhaps also remember that for many months Dr. Hawes was almost totally blind, yet he bore his misfortune with a remarkable degree of cheerfulness; and when by a surgical operation his sight was partly restored, his joy and gratitude seemed unbounded.

In view of the departure of our late friend and fellow member, it is fitting that we record our high appreciation of his excellent character as a gentleman and professional worker. Therefore, be it

Resolved: That while we mourn the loss of one who for so long a time was our intimate associate, and who by his cheerful spirit and kindly disposition endeared himself to his friends and fellow members, we are devoutly thankful that it was our privilege to enjoy his congenial companionship and to have been classed among his friends. And in our affectionate remembrance comes also the cheering thought that he led a good and useful life, and earned an honorable record.

Dated, May 27, 1895.

CHARLES E. FRANCIS,
C. A. WOODWARD,
ALBERT H. BROCKWAY,
Committee.

The Dental Digest.

Vol. I.

CHICAGO, JULY, 1895.

No. 7.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 325, No. 6, Vol. 1.]

In our last article we discussed at some length compensation and methods of presenting our claims for services, where patients have not already been made familiar with just compensation for good service, and urged that the two must go together.

We have not attempted to say what this compensation shall be or how much each one shall charge, but make this general proposition, viz., that good dental service requires much skill, good judgment, care, energy, and powers of endurance, all of which when concentrated on any line of business are bound to yield more than the average reward. We sometimes suspect that the requirements for a really successful practitioner of dentistry are not very well understood by those entering our ranks. The young man makes efforts here and there, at this and that line of business, but either from the lack of ability or persistent effort does not get the expected success; so he concludes to change, and having no conception of what is required, selects dentistry as an easy occupation and something suited to his taste. Consequently, far too many enter our ranks totally unfitted either by nature or training to fill the requirements necessary for a reasonable degree of success.

They enter some one of the numerous colleges, spend three years of their time and the necessary amount of money, and receive the desired diploma which certifies that they are qualified to practice the profession of dentistry. Armed with the false im-

pression that practicing dentistry is easy and that their college course made them superior to the "old fogey," they start out as additions to the dental profession. On the contrary, unless one entering the profession is possessed of unusual ability, and especially adapted for the service of dentistry, it is not much exaggeration to say that ten years is not too long to make a good practitioner of him. This picture is often more strikingly illustrated when the individual has been obliged to go in debt for the expense of his college course.

We have no means of knowing what becomes of this class of graduates. Fortunately for the community a large number drop out of dentistry, and, it is hoped, find some more suitable occupation in life. While on this subject we will point out another cause for regret in the ranks of the profession. There are many young men entering the profession who have ability, and the first part of their career is brilliant, but from certain causes, some of which we will show later, they do not attain to any degree of success. So, after a short season of prominence in the various lines of dentistry, they begin to fall off gradually, and in a few years more you will see them doing neither themselves nor the community any service. We have watched many such cases and should say the first cause usually is that they lose their determination to make a success of everything they undertake. Just so with a man's education, when he ceases to think and study it grows less, but if the opposite is true he will continually add to his knowledge. It is the same in every operation in dentistry when the determination is lost. First, some part of the service is allowed to slip through without being what it could be made, and as time goes on the number of deficiencies increase until they constitute the majority. Perhaps he may operate for a patient who is not able to pay for good services, so the work is hurriedly done. Then a difficult operation comes to hand which would be far better made with gold, but is made with cement or amalgam because it is going to take a great effort to make it with gold and secure a perfect filling, or, the dentist may have been out late the night before and does not feel very energetic in the morning.

Perhaps by lack of effort in making proper records and collecting his bills, or from some other reason he has allowed himself to get into debt and this disturbance hinders him from giving his

best effort. Being in debt is one of the most frequent hindrances to good service. It is a well-known fact that if a dentist is given credit he will purchase much more generously than when the cash is demanded. This comes from the fact that the money is not usually at hand, for the expenses of a dentist are generally very much out of proportion to his income. Dentists fit up elaborate offices and go in debt for the furnishing of them, thinking that an elegant office will induce the public to come to them. In reality, what brings desirable patients is careful, conscientious service. When a nice office can be had without financial embarrassment it will be an aid, but when to have it requires going into debt, do without everything you possibly can so as not to be handicapped at the very start by a debt. What honest dentist can do his best when he knows he is owing pressing bills which should be paid? We write feelingly on this subject, having been through the various stages of financial embarrassment, and, until we were out of debt and had a bank account, life was not worth living. We feel sure that those who have had any experience of this kind will pardon the plea we make for good financial management.

It may be that for some reason known only to himself his good spirits and energy are interfered with, and unconsciously he allows the good character of his operations to fall off until the poor ones become a general thing. The fact that good service as well as poor fails in some mouths and needs to be renewed from time to time, and the additional fact that deficient work can leave the operator's hands and the patient not detect that it was deficient until it needs renewing, and the excuse be given that it failed from the same cause that makes good operations fail, makes it possible for a poor operator to impose upon the community with reasonable success for a number of years. This is the most unfortunate part of the difficulty, for if good operations never gave way, making it necessary to renew them, the poor ones would soon be detected, and that class of men who now do poor work would speedily drop out.

Another cause for the failure of the young operator may be that he has been confining himself too closely to his office, and has neither associated with his fellow practitioners in their society work nor read the instructive part of the journals. When these two things are omitted from a man's professional life his growth

is sure to be dwarfed, and he is an extraordinary individual who can attain even average success if he neglects to reap the advantages gained from such helps as dental societies and journals. We know of nothing that could compensate for these with a dentist. Not only should he be a listener and reader, but he should also take an active part in producing as well as absorbing. From an extensive experience we feel able to make this additional proposition, viz., that he will render better service by broadening his life through the active interest he may have along other lines besides dentistry proper, perhaps we should say the details of dental practice. It will enable him to have a wider scope of thought and judgment and to decide what is the proper course to pursue in each particular case, which requires an extraordinary judgment that comes largely from experience and thought. If the dental profession would give some thought to outside matters and take a broader view of life, they would not only serve their patients better by deciding with clearer judgment, but they would also enlarge their minds and make dentistry a much greater profession in thought and ability than it now is.

In order to have patients keep their appointments punctually, it is necessary that the operator always be on hand at the appointed time. It has been our experience that we could accomplish more by not changing patients too often; in other words, by making the sittings longer than is the usual custom. Barring short treatments, two patients in the forenoon and two in the afternoon have been more satisfactory to us and our patrons than shorter sittings. We divide the time in this way: Commence at eight o'clock and continue till ten-thirty; from ten-thirty to twelve-forty-five or one; then a half hour for lunch, and after that it has been our custom to get about five minutes sleep if possible, and this we have found invaluable as a rest. We have two patients in the afternoon between the hours of one-thirty and five-thirty; then a horse-back ride for an hour.

From the time mentioned you will see that we give about nine hours a day to work, and when this time is occupied judiciously, a good deal of service can be rendered and will certainly yield a good revenue if properly managed. We know it is the custom of many men who have large practices to change their patients oftener than here indicated, but in our experience it is much more

fatiguing to take a new patient every hour. We get on well with a plan of operation which takes some thought at the beginning, and each new patient is a renewal as it were of the beginning of the sitting, and some time is lost as well as extra energy exerted which thus makes the day's practice more fatiguing.

In order to get good compensation for one's time in the practice of dentistry, the operator should study and plan how he can accomplish the desired end most rapidly and therefore the most economically to the patient. This brings us to the question of methods and materials, which will be the subject of another paper.

(TO BE CONTINUED.)

THE STUDY OF ANATOMY IN DENTAL COLLEGES.

BY W. T. ECKLEY, M. D., CHICAGO.

Dental Surgery is only one of a number of specialties into which the medical art, in the broadest acceptance of the term, has blossomed; otology, ophthalmology and gynæcology are distinct specialties, each one of which bears the same relation to the parent stem, general medicine, that dental surgery does. The bond of relationship between this parent stem and her various branches, as I take it, is very clearly anatomy. This being the case then the question very naturally arises, shall each student, *regardless of specialty*, study to the same extent the same kind and amount of anatomy? In other words, shall we expect of the dental student as much dissection as we expect of the student of medicine? This to me is a vexatious question and I simply give herewith my views, hoping to elicit thereby the opinions of other teachers of anatomy on this point. Under the present custom we *expect* as much anatomy of dental students as is legally expected of medical students in medical colleges—the whole body, no more, no less. The dental term is three, the medical term four years. The freshman *attends* his lectures—medical and dental—and *makes* one dissection. The second year he *makes* a dissection and *attends* his anatomical lectures—and finishes anatomy. The final result of which is that all our dental colleges turn out fairly good anatomists. But the question comes up here, are we

as faculties satisfied with *fairly good* when the *grade extraordinarily good* might just as well be attained?

In my opinion we are not teaching as much, nor are we teaching anatomy as thoroughly to-day as the merits of the branch demand, or as the circumstances make possible. The reason for this I claim is simply because we cling to the time-honored custom of permitting our students to get their dissections "off" and of slaughtering their material before they thoroughly understand the *technique* of dissecting. Can we reasonably expect a student, medical or dental, who has never seen a body demonstrated, to gain much in his first year by dissecting? Before he is familiar with osteology, he is wrestling with all the intricacies of relations, insertions, anastomoses and cerebral topography. Need we smile then when the freshman talks of the Fl. Longus Digitalis?

The ordinary student has the most extraordinary ideas of anatomy. He seldom can draw the line between macroscopic and microscopic anatomical structures. How often will he talk of greater trochanter and haversian canal in the same breath—or express disgust if he fails to find Henle's loops in his first dissection! He comes to us full of the belief that *dissecting* means *cutting*, and acting on this erroneous idea he mutilates, destroys, cuts—does not dissect. The ordinary student is anxious to get down to the bone and cut through the periosteum, or open the thoracic walls and see the valves of the heart! In fine, the student of to-day, after his first dissection, knows about as much anatomy as you and I did. He is satisfied. Are we? But the student is not to blame. The fault is our own—a fault of the times—a faulty method, but one easily rectified.

The following plan has given me satisfaction: First.—I try to make my pupils understand this one thing—that on the cadaver we study macroscopic not microscopic anatomy; hence in their anatomical reading they are to refer everything of a microscopic nature to the chair of histology.

Second.—I assign lessons and have the students prepare the lessons by reading up and examining dissected parts prepared by myself, and kept in our anatomical working museum for their use.

Third.—I always illustrate every lecture by a dissection, and try not to refer to anything in a lecture which I cannot show the class.

Fourth.—I firmly believe no student should be permitted to begin a dissection before he has seen a whole body demonstrated, and himself spent his first year studying the dissected specimens in the working museum of anatomy.

Fifth.—In his second year he should make his two dissections, and study in the museum special dissections of the head and neck.

The above plan I have carried out to my entire satisfaction in some cases, and I intend to make increased efforts in this direction, which seems to me as near the ideal way of teaching anatomy as our limited time now will permit. Of course, this method has its disadvantages. The preparation of specimens is tedious, but once prepared, they are good for years. My experience is that anatomy is not an insuperable branch if studied from nature, but if studied from cut and book alone our students will be only theoretical anatomists at best, and practically as ignorant of the real beauties of the human body as is the theoretical botanist of our flora. I certainly believe if the above plan, improved upon, be carried out, we can expect as much general anatomy from the dental student as we now expect of the medical student, and by a judicious use of carefully dissected specimens of head and neck, I think the modern dental student should be extraordinarily posted on the dental anatomical area. I think this topic should be thoroughly discussed in the National Association of Dental Faculties, and a uniform standard for teaching anatomy in dental colleges adopted. The present method certainly is a farce because students get through too often under false pretences.

A BIT OF PERSONAL EXPERIENCE.

BY C. W. STANTON, D. D. S., BUFFALO, N. Y.

In the summer of 1857, while quite a young lad, I was hit in the mouth by a stone, breaking the left superior and inferior laterals. Both were broken so that the pulp cavity was exposed. I remember very vividly the painful condition for a few days, especially when I tried to eat or drink. My parents, who had never understood the care of their own teeth, let me suffer, not knowing any better. I know now what every dentist knows, that

in a few days both pulps died. The lower one naturally developed an abscess in a year or two, and then I had my first experience in a dentist's chair, one summer evening when my father took me to the village and I had the root extracted. While a dental student in 1865, the upper root, which had not annoyed me at all, was opened up, treated for a time, then filled and the crown restored with gold. It was the first time that my preceptor had done any work of that kind and we naturally thought very highly of it.

Now comes the interesting point in connection with this case. For twenty years from the time it was filled, about once every four years I would have a few days of inflammation in the tooth, or rather in the membrane surrounding it, culminating in an alveolar abscess. From February, 1886, until February, 1895, there has been no trouble. My last experience, February last, was the most unpleasant of all, the feverish condition sending me to bed for a couple of days.

I have no faith in any treatment, as the root is a mere shell, filled with gold to as near the apex as it could be carried. There has probably been considerable absorption of the point of the root, and I am confident that an attempt to remove the filling and retreat would break up the whole thing. If the case troubled me often, I would not endure it. But the occasional unpleasantness once in four years, or better still, once in nine, seems to me to be the less of two evils—the one I endure, or some artificial denture.

ANIMALS AND STERILIZED AIR.—As far as can be gathered from some recent publications by Dr. J. Kijanozin, of the University of Kieff, the inhalation of sterilized air decreases in a remarkable manner the assimilation of nitrogenous matter. This author kept animals in specially devised apparatus and supplied them with air in an absolutely sterilized condition, and at the same time fed them with food as far as possible free from bacteria. The animals under these conditions lost weight more quickly than normally and excreted more nitrogen and carbon dioxide. The reason suggested for this difference is that the micro-organisms when present aid in the decomposition and peptonizing of the nitrogenous matter in the intestines. In a large number of the cases the animals died a few minutes, hours or days after the experiment, from a cause which, so far, Dr. Kijanozin has been unable to ascertain.

THE LOWER THIRD OF THE FACE—ITS REVELATION OF CHARACTER.

BY B. J. CIGRAND, B. S., D. D. S., Chicago.

(Read before the Chicago Dental Club at the June meeting.)

Ever since I have been old enough to observe, it has been my very great delight to study the various symbols of character which are so clearly stamped upon the human figure; it was partially due to this desire for knowledge of the human race that I resolved to register myself in the dental profession. For years prior to my affiliation with the dental fraternity, I had been a close student of physiognomy and kindred sciences which reveal the varied characteristics of man. Aside from dentistry, few subjects afford me more pleasure than the history of the advancement and character of the human family, and I must confess that the profession in which I am engaged well affords an opportunity for inquiry into the general dispositions of the people; for it is in the practice of our profession that we come in direct contact with all classes, conditions and races of humanity. And permit me to acknowledge in the beginning of this paper, that no small quota of my success in dentistry is due to a fractional understanding of human nature; and I am impelled to say that it matters little how learned or proficient one may be in the general practice of the principles of dental science, for if he be ignorant or regardless of the general character or idiosyncracies of the patients for whom he operates, he most certainly will be a colossal failure as a dentist.

In a recent article Dr. J. N. Crouse makes this very important remark:—"Human nature—that subtle, undefinable, hard to understand something, which reveals itself constantly in various shapes—this human nature must be met, understood and controlled before a man can become a successful operator, in the full sense of the word. Every student with any amount of practice finds all sorts of dispositions and temperaments to deal with; the pleasant and the disagreeable, the good-natured and the cross, the reasonable and the unreasonable, the honest and the dishonest, the generous and the selfish, the appreciative and the unappreciative, the nervous people out of health, the hysterical subjects, the old maids and bachelors who are seldom well pleased, and the capricious, self-willed and ungoverned children—all of these must

be met and dealt with under the most trying circumstances." He then says: "A distinguished educator has said that 'all education can be summed up as knowing yourself, knowing your fellow-man and knowing how to adapt yourself to your fellow-man.' A dentist should be a good judge of human nature and be able to control his various patients with their different peculiarities, and this requires more than an average intelligence. Much, however, can be acquired by practice and study of the subject. This important faculty is so closely related to the various qualifications of a dentist that its advantages can readily be seen."

Other great lights in the dental profession have emphasized this truth, prominently among them are Drs. Kingsley, Allport, Harris, Talbot and Richardson. I might mention scores of others equally eminent, but I well know that there is not present here to-night a practitioner who does not fully realize the importance of a practical knowledge of racial natures.

In the practice of dental prosthesis and oral surgery the modern dentist must be in the full sense of the word a "facial sculptor," for to his tender care and consideration is left the moulding of many a scowl or smile. He must appreciate the lines of beauty in expression and discern at a glance the changes necessary in the different physiognomies to make them charming and inviting, rather than repellant and false. It is in the practice of our chosen profession that the study of the face is most essential, especially so since "restoration" is its distinctive feature; but he needs a fair understanding of the principles of human character, aside from the purpose of restoring, for, if he wishes to attain an agreeable result in any operation, he must also know for whom he is working.

The face is divine territory and should receive the sincerest consideration of all conscientious practitioners. The face is in truth the window to the brain, the avenue to the mind and the symbol of the character; it is the servant of the emotions; it mirrors the feelings, and gives expression to the impulses. The face is the visible record; the map of the heart proclaiming the character of the individual to all who can read. Upon it are reflected the atoms of individuality which make up the career of its owner. It is the herald which advertises the true composition of the man and tells in unmistakable language the traits, peculiarities and characteristics of the person wearing it. These symbols which

we so clearly trace on the face are not occult or secret, but are open and plain, so much so that even a child may know distinctly the heart of its possessor.

The changing expression of the face is universally regarded as giving response to the passing thought or emotion of the mind. Thus, if one be long afflicted by grief or blessed by joy, wearied by trouble or vexed with care, shadowed by melancholy or excited by wit, inspired by faith or led by delusions, inflated by pride or subjected to shame,—the emotions awakened by these different states reveal themselves in the face and become so fixed as to defy concealment. But let one's circumstances be suddenly reversed, let grief be converted into joy, let oppression be turned to liberty, and the lines of care and vexation will fade away and scarcely a trace will remain to tell the tale. In short, the sunshine and the shadow of our lives are correspondingly engraven on the mouldable face. And it is this ever and constant change of the face that demonstrates the two-sidedness of man's being. It proves beyond the shadow of a doubt that all men are subject to development or the reverse; it also clearly shows that all men, and I mean women too, have a two-fold or "dual character;" the one being natural and the other acquired. The "dual character" is emphatically represented in Robert Louis Stevenson's novel, entitled '*Dr. Jeckyll and Mr. Hyde*'. Be the acquired character what it will, the innate or created one is ever the power behind the throne. The Germans have a saying which is true to the test, namely: "What the gods have given you, the winds won't blow away."

But it is the innate or natural disposition of persons that we as dentists must most clearly acquaint ourselves with, since while engaged in our work we operate on nature's being, and any pain or discomfort which we inflict has an immediate response, a response so sudden that it is almost beyond the power of the patient to control. I do not wish to be understood as meaning that a keen knowledge of the acquired disposition is needless, for we must be well versed in both the innate as well the acquired character if we desire to accomplish successfully our operation, and at the same time keep in good humor the acquired character of the patient. A safe rule to follow is this: "Keep on the dexter side of the innate character."

Now having given a few general observations on the certainty

and usefulness of physiognomy, I will endeavor to briefly tell what indices of character are revealed on the lower third of the face, and let me assure you that the deductions which I here present have been evolved from personal observation, guided by the safe rule of comparison. Much of what I know on the subject must of necessity come from reading and research, but the conclusions which I have drawn are uninfluenced by preexisting theories; nor have I projected a theory and then gone forth to find material to prove it true, but I have made it a point to collect all possible notes, observe closely and compare freely, before permitting myself to formulate a theory or conclusion.



Anatomists and physiologists differ widely as to the definition of the face; there are those who include the forehead as a part of the face, and there are others who claim that the face begins at the superciliary ridges and embraces the eyes, nose, cheeks, mouth and chin. I prefer the former definition which holds that the forehead is inclusive in the face. Dividing the face in three equal parts, we have in the lower third the lips, mouth, chin, greater portion of the cheeks, and the inferior maxilla.

THE LIPS AND MOUTH.

Dr. Oliver W. Holmes says: "All parts of the face doubtless have their fixed relations to each other and to the character of the person to whom the face belongs. But there is one feature, which more than any other facial sign reveals the nature of the individual. This feature is the mouth, and the portion of it referred to is the corner. A circle of half an inch radius, having

its center at the junction of the two lips, will include the chief focus of expression."

The tongue may be silent, but the mouth and lips never cease to speak, they are ever translating to intelligent observers the inner life of the owner.

A long upper lip, as Fig. 1, indicates firmness, and when perfectly straight shows a tendency towards stubbornness. The saying, "he has a stiff upper lip," is very appropriate when it is intended to convey the idea that the person is firm and unyielding. People possessing this kind of a lip never surrender, and meet the assaults of adversity or the attacks of enemies as the rock meets the surging waves. A large number of generals have lips of this character, Geo. Washington being prominent among them. When the lip curves in at the junction of the lips, as in Fig. 2, it is a mark of determination and is usually seen in explorers and investigators. Such a lip adorned the face of the great Franklin.

A short upper lip, as in Fig. 3, portrays a weak and wavering character. People with this symbol are constantly changing their mind, and have hardly enough stability and fixedness of purpose to gain a livelihood. They are the "I can't" element in the race. Or as the French say, "He's like the weather."

When the upper lip is curved gracefully outward, as Fig. 4, it symbolizes ambition. These persons evince a good degree of self-respect and dignity. You find that they prefer the place of a leader rather than that of a follower; they are seldom overbearing and are usually of a sunny disposition; they delight to be in society and enjoy a happy "social chat." They have an agreeable and fascinating manner and have an acceptable way of saying and doing things. Abraham Lincoln possessed this lip and was true to its significance.

(TO BE CONTINUED.)

A law journal published in Russia gives some interesting data collected at the eighteen Anthropometric Stations in the empire. One of the curious things brought to light is that in Russia each group of criminals has its own particular color of the eye. Thieves and murderers, it seems, possess "chestnut-brown" eyes. Robbers—that is to say, thieves in a large and violent line of business—have slate-colored eyes, and the same is stated of criminals convicted of swindling. The vagabond classes, among whom are probably reckoned the passportless class, have eyes of an azure blue tint. The color most observed among minor criminals and those convicted of slight offenses is "chestnut-brown green."

Digests.

The International Dental Journal for May, 1895.

"Diseases of the Maxillary Sinus," by Harrison Allen, M. D., Philadelphia; read before the Academy of Stomatology, March 22, 1895. These are of five kinds, as follows, in the order of their frequency: First, a secondary pus-formation dependent upon irritation at the root of a tooth. Second, a purulent inflammation seen in the rheumatic subjects and not to be separated from exhibitions of rheumatism seen elsewhere in the economy. Third, extension of empyema of the frontal sinus into the maxillary sinus. Fourth, polypoid degeneration of the mucous lining of the sinus. Fifth, presence of sero-mucus formed under catarrhal excitement.

First.—Pus in the maxillary sinus when arising from irritation at the root of a tooth is the condition which associates this disease with dental practice in a conspicuous manner. It is important to remember that a very slight amount of pus will sooner or later tend to find its way into the nose, so that a purulent discharge in the nostril should immediately lead the observer to examine the teeth, and if any of the molar or bicuspid series be found defective, they should receive prompt attention. Extraction of the offending teeth will cure the purulent discharge in a very short time, provided that no degenerate processes are set up in the mucous membrane, or bone. It will sometimes happen that after teeth have been extracted and the pus collection entirely removed, relapses will occur. In such cases there is one of three conditions to study,—irritation of imperfect absorption of the bone about the bottom of the old socket, imperfect healing of the wound created by extraction, or the presence of inspissated masses, the products of inflammation, in the chamber itself.

Second.—The results of dental irritation may be present in persons of a rheumatic diathesis. But inflammation of any kind, whether excited by disease about the root of a tooth or not, may extend rapidly into the sinus. Such cases are more apt to occur in middle life than at any other period, and are probably more common in those with history of alcoholic excess than in the tem-

perate. * * Rheumatic inflammation may occur on both sides of the face.

Third.—Disease of the frontal sinus if neglected is apt to extend into the maxillary sinus. More than once after treatment of the frontal sinus the discharge into the nose continued, and a second operation was performed upon the maxillary sinus with result of demonstrating that empyema had existed in both the chambers. Several cases were seen in consultation where, after treatment of the frontal sinus empyema, the same condition was detected in the maxillary sinus.

Fourth.—The occurrence of a polypoid mass on the wall of the maxillary sinus may occur in the latter stage of any disease affecting this chamber; whether these growths are at any time the exciting causes of collections of pus is uncertain. This condition is perhaps the most inveterate of any to which the maxillary sinus is subject. Fortunately, it is rare.

Fifth.—In the last place we have occasionally present effusion occurring in the maxillary sinus. I have not seen this condition described, and it was unknown to me prior to my custom of using transillumination as an aid to diagnosis of disease in this portion of the body.

No case has come under my notice in which I could prove that inflammation of the maxillary sinus had extended from the nasal chamber. On anatomical grounds such an extension is readily explicable. I acknowledge that the difference between the two cases here detailed and those of inflammation of high grade is only one of degree. In this connection: a middle-aged lady had deafness due to spastic inflammation of the middle ears. There was a large posterior hypertrophy of the inferior turbinated bone on the right side, and ulceration on both sides of the triangular cartilage of the septum. The disease continuing obstinate led me to make a careful inspection of the facial structure by transillumination; to my surprise, the entire right side of the face was much more opaque than the left. Pressure over the maxillary sinus above the gum on the right side yielded a dull pain which had not been complained of. The patient was of full habit and lithæmic. The opacity gradually disappeared by attention to general health and the use of alteratives.

It is probable that the instances in which this effusion occurs

are more numerous than we have supposed, owing to the fact that prominent symptoms are not created by the presence of the fluid. I think it would have been a mistake to have opened the sinus in this case.

Occasionally diseases of obscure character are located in the region of the maxillary sinus which do not readily admit of classification. A case of this character may be here outlined: a gentleman reported suffering from pain in the right side of the face in which I was unable to determine the cause. After a futile study the patient was etherized and the parts thoroughly explored. The sinus was opened in front at a point posterior to the canine fossa. Everything was found to be in a perfectly normal condition. Nevertheless, the patient rapidly recovered. Opening the sinus thus cured a pain which was centred in the region of the face.

Syphilitic disease, of course, may be located in the maxillary sinus as well as in any other part of the economy. All affections of the maxillary sinus appear to be much less frequent in the well-to-do than in the poor class of patients. Judging from my own experience, about eight per cent. of the crania obtained from dissecting-rooms exhibit evidences of inflammation of these parts. Physicians in charge of large dispensaries report that one or two cases of antral disease are generally found at any time on the list of applicants; yet dentists with a large practice inform us that they almost never see diseases of the maxillary sinus.

"Some Disturbances Caused by Diseases of the Teeth," by Edgar F. Stevens, D. M. D.; Medford, Mass.; read before the Harvard Odont. Soc., Boston, Sept. 27, 1894. Few physicians, especially those who studied medicine years ago, think of the teeth in connection with nervous disturbances of the body. That the teeth are the cause of a great many disturbances not only of the parts contiguous to them, but often of parts far removed, is a recognized fact, and it is not surprising when the intimate connection established between the teeth and other parts of the body by nerves, blood-vessels, and muscular tissue is considered. It is remarkable there is so little disturbance from some conditions. In the extraction of teeth, for instance, the muscular and nerve fibres are broken, and the bony tissue split and slivered, yet, as a

rule, how little attention or medication is needed. Very often patients are seen with high pulse and temperature, and in an extremely nervous condition caused by alveolar abscess. The different phases of neuralgia are common, caused by deposits of salivary calculus, exposure of pulp, calcification of pulp, pressure of gas, pressure of fillings on pulps, extended eruption, spiculae or nodules of bone which have not been absorbed after extraction, and by many other causes.

A few cases of disturbances caused by dental irritation: A lady about thirty years old had supraorbital neuralgia. The pain would start a day or two before the menstrual flow in a second superior right molar, and shoot to the supraorbital region. It was intense, sharp, gnawing in character, and would generally last until the second day of the flow, when it would gradually pass away. She had been under treatment for neuralgia, but relief was only temporary. On examination the tooth looked all right, no cavities, no discoloration, not tender to touch, but from the nature of the pain which, as I said before, was of a sharp, gnawing character, I concluded that the pulp was calcified. I removed a large coronomesial filling, which was in perfect condition, and cut down to the pulp-chamber without giving much pain, and found the body of pulp entirely calcified, filling the entire chamber, but not attached to its walls. The root-canals were imperfectly filled with calcified tissue a third of their length. Touching the living pulp in the lower part of the canals would send a sharp pain to the supraorbital region. The pulp-tissue was devitalized and removed, the canals filled, and the crown filling replaced. The neuralgia disappeared.

* * * A boy, eight years old, while riding on an electric car was struck on the side of the lower jaw by the brake-handle with such force that it knocked him against the door, bruising his shoulder badly. Five days after this occurred his physician brought him to me for examination. I found upon opening his mouth that the second inferior left deciduous molar had been recently removed (it was knocked out by the brake-handle), the first deciduous molar was displaced, the masticating surface presenting to the tongue, the roots projecting through the gum externally. There was also an incomplete fracture of the outer alveolar plate extending from the inferior canine to the sixth year molar; a severe contusion of the left cheek and laceration of the

mucous membrane, with a discharge of pus internally from a lacerated opening in the cheek. The roots of the displaced molar projected into the wound in the cheek, and I extracted it; I also washed out the abscess in the cheek with a solution of carbolic acid, directing the patient to use an antiseptic wash. I saw the boy on the third day after this, and decided to open the abscess on the outside of the cheek, the swelling being half as large as an egg. About a teaspoonful of pus was evacuated. The parts healed nicely, the scar being barely perceptible. No doubt in this case the cause of abscess was infection from the roots of the deciduous molar, which was in a state of chronic abscess, the roots being forced into the cheek when struck by the brake-handle. * * *

A lady had been under the physician's care for a number of months for mania. She would have periods of crying, then suddenly jump up and down and yell at the top of her voice. She had lost weight, her digestion was impaired, and she was apparently in consumption. Her teeth being troublesome, her physician requested their removal. Ether was administered, and all her teeth, which were in a terribly broken-down condition, were removed. Inside of two weeks she had recovered her mind, and is now at the end of four months in a good physiological condition.

"On Contour," by Dr. T. J. Huntington, New York; read before the N. Y. Odontological Society, Nov. 20, 1894. While so much is being said about filling-materials, it may be well to review that upon which the efficiency of all filling-material depends,—*i. e.* form or "contour." Whatever the agency which acts upon a tooth to first produce caries, that agency is presumably no less potent after the carious cavity has been filled than it was before. If accumulation of decomposing foods has been the cause, a flat filling of any size affords a better lodgement for such deposits, and the efforts to cleanse the tooth will be less effectual after such a filling than they were when the convex surface of the tooth was presented; especially is this so when, as is usually the case, a V-shaped space is left, the angle being towards the neck of the tooth. To keep such a space cleaned requires more vigilance than anyone is likely to exercise, and the result is sure to be that the filling gives way, at the same time involving the surface of the

approximal tooth. This probably takes place before the first filling shows any signs of failure, and the point of decay comes so near the cervix that to fill the second cavity requires a great deal of cutting away of the convex approximal surface. When the work is done the teeth or fillings, or both, will be in contact from grinding surface to gum, or there will be a V-shaped space, which is worse.

The case would not be so bad, however, if the only evil resulting from flat fillings were to limit the period of their own usefulness. The V-shaped space readily admits all sorts of material, fibrous and otherwise, and holds it. More presses upon it until the gum is forced away from its natural position. Particles of food become lodged under the gum, causing irritation and supuration. It is not uncommon to see a cavity thus formed extending half way from the neck of a tooth or teeth to the apex of the roots. The alveolus and peridental membrane give way, and if there is any tendency to calcareous deposits, they find their way most readily to this secluded place and then carry on the destructive work. I believe that a great deal of the trouble which comes to the surrounding tissues of the necks and roots of teeth owes its inception to the very process which I have described. What I have said applies to all teeth, but especially to bicuspid and molars, as the former are very difficult to fill correctly and permanently.

A flat filling need not detract from the original width of any tooth, but it usually does, and where there are a number of such fillings and each tooth loses something of its width, in some cases the aggregate loss is as great as if a first molar were extracted from each side. This results: the contracting arch first changes the direction of the crowns of the teeth as well as their normal position. This change disarranges the articulation of the entire set. This disarrangement through contraction, whether it occur by the loss of teeth or from the cutting away incident to frequent renewing of filling, produces an extreme and unnatural wearing of the grinding surface of the molars. The wearing shortens the bite and prevents the free motions of mastication. It also occasions a moving forward of the lower arch, which brings undue wear on the cutting edges of the incisors, and also brings a force upon the bicuspid in mastication which, when they are weakened

by large fillings, they are unable, and were never intended to support.

The first requisite of contour filling is plenty of space in which to work. While there is much difference of opinion as to how much cutting away should be done in the preparation of cavities, the best plan is to pretty freely cut away all frail portions, or portions which, unless cut away, will, when the cavity is filled, bring the line between filling and enamel in contact, when the filling is finished, with the neighboring tooth. The sacrifice of enamel and dentine sometimes seems unnecessary, but more failures come from the lack of free cutting than from the opposite. If there was more cutting away of the lateral margins of approximal cavities at the cervices of teeth, there would be less fault found with the efficiency of filling materials.

The Pacific Coast Dentist for June, 1895.

"Dental Jurisprudence, Compensation," by H. R. Wiley, A. B., San Francisco. The relations between dentist and patient, as to professional services and compensation therefor, are governed by the general principles applicable to all contracts of the same nature. Contracts are either express or implied. "When the agreement is formal and stated, either verbally or in writing," the law terms it an express contract. "When the agreement is matter of inference and deduction," it is termed an implied contract. It has been held that "in an 'implied contract' the law supplies that which, not being stated, must be presumed to have been the agreement intended." Also, "an implied contract is co-ordinate and commensurate with duty, and whenever it is certain that a man ought to do a particular thing, the law supposes him to have promised to do that thing."

The contract between dentist and patient is more often implied than expressed, yet not the less enforceable on that account when its existence has been established. The law assumes that the general practitioner contracts to use in all his operations the ordinary degree of skill, as well as due care, having regard to the nature of each case and the circumstances attending it. Likewise, it is assumed that the patient, in accepting the services of a dentist, contracts to pay therefor a reasonable compensation, the amount of which is to be fixed by the dentist. If the patient re-

fuses to pay the amount charged, as being excessive, and suit be instituted thereon, the jury must determine what is a reasonable compensation for the services rendered, to determine which requires the production of expert testimony.

"Practical Points on the Treatment of Pyorrhea Alveolaris," by Garrett Newkirk, M. D., Chicago; read before the So. Calif. Odont. Society, June 4, 1895. When a case presents for treatment the first step is to put the entire oral cavity in as cleanly a condition as possible, and then insure further the continuance of that condition. This involves, of course, a most thorough examination of each tooth, with its surrounding gum tissue, and the alveolar walls about each root. Very often this thorough examination cannot be made until after two or three sittings and a careful removal of all salivary deposits; not until the clots and fibrinous shreds have disappeared after such cleansing, and irritation of the gums and swelling have subsided so far as dependent on causes other than pyorrhea. Every diseased point must be reached definitely and systematically, and having done this they should all be indicated on a diagram. No one can safely trust his memory to carry all the details of any case where several regions may be involved, and possibly months pass with the patient away. There are few matters in practice wherein memoranda are of more importance than here, so besides the diagram, records should be made of the treatment employed—when varied and for what reason, of changing conditions, successes and failures—not only for present assistance in each case, but for future reference and satisfaction.

One of the first things to be attended to is the cleanliness of the mouth, in general and particular. The patient himself has a large part to perform in the treatment of his own case, and this fact should be impressed upon his mind. After each meal and at bedtime the mouth must be cleansed by brushing the teeth and thoroughly rinsing with a disinfectant fluid. It is best not to use tooth powder, as insoluble particles may gravitate from it and remain about the necks of the teeth, especially those of the lower jaw. If the case is one where there is little or no salivary calculus, the local reaction about the necks of the teeth will be almost surely acid, and the solution prescribed, both as a wash and for

the brush, should be made decidedly alkaline with bi-carbonate of soda.

If there are deep pockets with flabby, loose margins, into which fermentable substances will be sure to intrude, these must be protected from day to day with pledgets of lintine saturated with medicated glycerine, and such protection maintained till healing has taken place from the bottom of the cavities. A good mixture for this purpose is glycerine with tannin, ten grains to one dram, to which are added a few drops of oil of cloves. Where the teeth are accessible the patient can use this mixture locally, drying the parts before applying. The nitrate-of-silver treatment here works admirably sometimes. Lintine, as it comes in rolled sheet form, is superior to cotton for ordinary use, being fibrous, nice to wind upon a broach, and, best of all, thoroughly aseptic. Besides, it is available for cutting into small squares to be used as protective pads, for wiping instruments, absorbing surplus medicaments, etc.

If the disease has been of long standing it will have extended quite beyond the peridental membrane into and through the cancellated tissue of the alveolar process, entirely through the labial or lingual walls it may be, or between the roots of the teeth. Extending into these spaces or "pockets" there may very often be found irregular fragments of the remaining bone still attached but carious. Until these are removed with a sharp bur there can be no cure. They are dead tissues, irritative, nests for microbes, which cannot be shut in. Decompose they will, and drainage they will have. A most obstinate case of pyorrhea has yielded at once on the discovery and removal of one of these half-broken down walls between lateral and central incisor roots. Some of the most discouraging cases are those in connection with lower molars, because of the difficulty of thorough scaling, and the gravitation of irritating substances into the pockets, with a corresponding lack of drainage. It is sometimes necessary to remove the worst involved to save the others, and usually with success.

Two important things often neglected are: observance of the occlusion of the involved teeth, which are often somewhat extruded and need the removal of their cusps so that they may not be moved in all directions by every closure of the jaws; and the

support of loose teeth, particularly of the lower incisors, by wiring or banding together with gold. In one case four very loose teeth were kept in place and serviceable for eight years by a series of six bands soldered together, which included the four incisors and two cuspids. Of necessity, a loose tooth will not become firm so long as it is unsupported and all its surrounding forces are favorable to movement only.

I am a believer in the strictly local theory of this affection: that at the start it is an infection, then an ulceration, first of soft tissue, then of spongy bone. I believe it to be a *surgical disease*, to be treated by the latest and best surgical methods, which may be comprehended in brief by the terms surgical cleanliness, special hygiene, disinfection, antisepsis, drainage, rest and mechanical support. Just as in other affections of a local nature, general conditions have a bearing: the condition of blood, powers of assimilation, constitutional tendencies, healthfulness or disease of other parts, constitution and temperament, any and all these may exert modifying influences. Favorable or unfavorable, they accelerate or retard our cures. As in the treatment of many other intrinsically local diseases, it is well to take them into account. If there be dyspepsia, with sour eructations from the stomach, or disease of the throat and nose, no harm but only benefit could happen by co-incident remedies for these. But when all is said, the treatment in chief is treatment local within the mouth. To my mind there has never been a theory advanced more non-practical and mischievous than the one set forth within a year past that this disease is at one with gout or rheumatism, and dependent not on local conditions but a specific agent present in the blood.

DISCUSSION. Dr. J. D. Moody.—For years careful observers had associated gout with diseases of the gums, reasoning thus: In the metabolic changes attendant upon gout uric acid was formed. This acid was deposited on the root of the tooth. Each granule became the nucleus for concretions of calculus. These irritating the tissues, pus and death followed. Chemical examination proved the presence of uric acid in this unlooked-for place. But Dr. Black takes up the examination and finds it in all mouths, those with phagadenic pericementitis, and those without. Then it clearly cannot be the cause. Gouty deposits are formed in the

cartilage. There is no cartilage here. If of gouty origin the deposits would be in any part of the tissue, but this disease always begins at the margin of the gum. On examining the minute anatomy of these tissues we find that there are lymph-like cells pouring a secretion into the gingival space. What is this exudate? These cells are specialized and their contents and work must be specific. In a diseased condition of gland or system they pour out a vitiated fluid that is destructive of the neighboring tissues. Or is it that the glands themselves break down, involving the rest of the periodontal membrane and alveolus? Dr. Kirk cites a case where the calculus was formed at end of root, swelling and pus followed, and this while the gingival space was intact. Remembering the histology of the parts given it will be seen how such a condition might *appear* to be the case. If this exudate is abnormal it at once becomes the habitat for micro-organisms. If there be a specific organism for this disease you will readily understand its further progress. I believe, however, that their part is a subordinate one. Ordinarily disease in a gland is not local; it is the exhibition of a wider and more remote disturbance. As a result of faulty metabolism here other compounds may be formed—a virulent poison, an irritating deposit. These may be a step in the progress of the disease, but they are not the original cause. Some will say positively that no pyorrhea can exist without serumal calculus being present, but I believe this to be an error, as I am confident I have seen many such cases. I believe that the same secretion may at one time show certain characteristics, and at another time different conditions. If pyorrhea can exist in *one* case without calculus it is most certainly a systemic and not a local disease, and the calculus a result and not a cause. I believe we must come to recognize two phases of this disease—one with, one without calculus; the one constitutional, the other possibly both constitutional and local.

Dr. E. L. Townsend.—From my experience with pyorrhea I believe that neither local nor constitutional treatment will effect a cure; and while it is true that instrumentation will greatly relieve the condition, the results are far from being a cure. In the normal state the teeth are surrounded by bony sockets, the edges of which are firm, dense and like the outer surface of the adjacent bone. When pyorrhea has attacked the teeth this bone at the

gingival margins becomes spongy and porous. As the disease progresses the bone disappears and a pocket is produced. The calculus, commencing at the gingival line, has gradually extended far below the margin of the gum and closely adheres to the root of the tooth. As the calculus advances the peridental membrane is crowded away from the root and ceases to perform its function. Nutrition to this part of the tooth is cut off and to all intents is dead-tooth substance; the disease advances and at last the apex is reached and the tooth becomes really dead, and nature allows it to drop out. You may have pyorrhea on one side of a tooth and healthy tissue on the other. You can remove the calculus and make the tooth serviceable, but I do not believe you will ever get a healthy union between the gum tissue and the tooth on the side where the pyorrhea existed. There is no pericementum to revivify. The closing of the pores of the dentine with an obnoxious substance, stopping the circulation in the dental tubuli, there to putrefy and poison the surrounding tissue, to my mind is reason enough why this disease is not easily eradicated. The peridental membrane must nourish the tooth, the circulation is through the dental tubuli; if you close these then the circulation must stop and death ensue. In a tooth this can be partial, and the tooth still maintain its position and perform its functions, but that portion which is dead will remain dead, and the soft tissues that come in contact with the diseased tooth substance do not take on a healthy and canny appearance.

The Ohio Dental Journal for June, 1895.

"Practical Points," by Dr. Wm. H. Steele, Forest City, Iowa; read before the Iowa State Dental Society, May, 1895. *Hint on Repairing Rubber Plates.*—It is often a difficult matter to obtain a perfect cast of broken plates, especially if the plate is a lower one, with a good deal of undercut. Cast such a plate in sections and remove one section at a time. The model can be made in two, three, or even more sections if desired; bearing in mind that they must be cast in such a way as to avoid the under-cut, and allow of easy removal. Suppose you have a lower plate, broken between the central incisors; take two pieces of base plate wax, warm them and place in each section of the plate at the first bicuspid, to form a dam for the plaster to flow against. Now oil

lightly, mix the plaster and pour each section; when the plaster is sufficiently hard remove the wax; bore holes or cut grooves in the end of each plaster section, to serve as guides, varnish and oil them; place the broken parts of the plate together in proper position and pour the middle section of the cast. When set, remove the sections, place together in their relative positions, lock in place with plaster, and proceed as usual with the repair.

To Mend a Broken Cable.—A quick and strong way to repair a broken engine cable is to bend a piece of brass in the shape of a tube of proper size to fit snugly over the broken ends of the cable. Thoroughly clean the broken ends of all grease and dirt; slip them into the tube; put on a little soldering acid; lay a piece of jewelers soft solder along the open joint of the tube; hold the tube over a spirit lamp until the solder melts and flows into it and around the broken cable. Trim off all surplus solder, round off all sharp corners, and if the work has been properly done, this will be the strongest part of the cable.

Retaining Medicines in Cavities.—This is an easy operation in any of the simple cavities, but when applying the arsenical preparations in large approximate cavities, it is often difficult to seal it in properly. If the space between the cavity and the adjoining tooth is not too great, a piece of softened gutta-percha can be fitted into the space so as to close the entire cavity, except a small opening in the crown through which the application can be made and sealed in. If the tooth is too isolated to treat in this manner, a shell crown can be formed of thin sheet gutta-percha, slipped over the tooth, and a hole made through it for introducing the application.

About Engine Burs.—Many members of our profession are in the habit of buying their supplies and instruments in too small quantities, which is a very extravagant way of conducting business. If burs are bought in gross lots, instead of a dozen at a time, a great saving can be effected. When ordering, specify exactly what you want, and after getting a nice stock of burs, take care of them—keep them clean, free from rust, and out of the sunlight. They should be put away in cases so arranged that selections can be made without having to handle over the whole stock. When operating, never lay a bur aside until it is cleaned; for when the blades are rusty the bur is worthless. At the trifling

cost of each, there is no excuse for torturing a patient by using dull burs, and the obtundent has never been discovered that can make excavating painless with a slowly revolving, poorly made, dull bur, under pressure in a flooded cavity. On the other hand, the majority of teeth can be excavated with but little or no pain by using good sharp burs, run at a high speed, handled with a light, intermittent touch, and the cavity being kept absolutely dry.

"Lycoperdon for Alveolar Hemorrhage," by C. Brewster, L. D. S., Montreal; read before the Vermont State Dental Society, March, 1895. It has long been known that lycoperdon was a powerful styptic and anesthetic, but it has not been much used in dentistry. Plugging the alveolar cavity with any of the other known styptics is invariably followed, after the bleeding has been arrested, by much inflammation and severe pain. When, however, lycoperdon is used for plugging the cavity, the very opposite effect is produced, the wound, instead of presenting an angry, irritated appearance, and healing up very slowly, shows every inclination to heal by first intention, and not only that, but it shows a decided tendency to heal more rapidly than under ordinary circumstances. When we meet with persistent hemorrhage, we should first discover if the flowing blood is a blood that will coagulate. If a little be caught in a spoon, and the fibrin is seen to clot in three minutes, the vascular or mechanical cause will disappear of itself. But if the blood will not clot, we can rarely, if ever, fail by plugging the socket with lycoperdon. By removing anything in the way of thickened blood from the alveolar sockets, and opening the cellular tissue integument which invests them, bits of the fungus can be easily pressed in with the finger, a piece of cork, spunk, lead or even cotton placed on the top of it, the jaws closed, and the patient kept quiet, cool and erect, and no alcoholic stimulant given.

I have found the greatest virtue to lie in the lycoperdon bovista. The genus giganteum is the largest and easiest obtained; the bovista is small and scarce. The former is considered a distinct species, but the styptic properties of the bovista are much superior, containing a large proportion of phosphate of soda. It occurred to me to select the bovista, and medicate with carbolic acid and camphor, by which means I have removed certain objec-

tions to it, and made it antiseptic as well as styptic. Analysis of the ash of *bovista gigantea*:

	Per cent.
Dry substance at 100 C - - - - -	8.35
Water - - - - -	91.65
Ash - - - - -	0.571
Ash on dry substance - - - - -	6.36

Analysis of the ash. Calculated on plans calculated on residue.

	Per cent.	Per cent.
Resolute residue in hydrochloric acid	0.000
Alumim - - - - -	0.107	15.66
Magnesia - - - - -	0.000	2.03
Sulphuric acid (H_2SO_4) - - - - -	0.060	8.7ff
Silica (SiO_2) - - - - -	09.03	0.44
Sina (Cro.) mere traces - - - - -
Phosphate of soda - - - - -	0.381	72.18

It is noticeable that phosphate of soda was once largely used to arrest hemorrhage, and it appears that the styptic properties of the puff-ball are due to the excess of this substance.

Items of Interest for June, 1895.

"Position at the Chair," by Dr. W. S. Elliott, Trenton, N. J. Not less important to the comfort of the patient is that of the operator. While an hour or two of even patient submission on the part of the patient is thus limited, the repeated demands on the operator are taxing in the extreme. Ease of position at the chair is a conservator of nervous energy and promoter of satisfactory purposes. The one unfortunate circumstance which tends to opposite conditions is the fact that the treading of the ordinary standard engine, placed as it usually is at the right, necessitates the partial turning of the body toward the window and away from the patient; also compelling the operator to stand during the several hours of work, which in itself is wearisome and exhausting. No feature of the college curriculum seems to tend toward this phase of education, for in passing among the students at their work in the clinic-room, it is at once evident that they labor under great discomfort and inability. If through necessity foot-power must be used, then the driving wheel should be placed behind the chair, so that the body may not become distorted in the effort to reach the treadle. This forced necessity, of course,

will compel the standing position, unless the treading is relegated to an assistant. * * * The swinging bracket table in front of the patient is not a necessity—though sometimes convenient. In lieu of this a small stationary stand at the operator's front will receive his instruments, etc., and within arm's length at his left should be the cabinet of drawers.

"Amputation of Tooth-Roots," by Dr. W. E. Walker, before the last Mississippi Association. The writer described what he claimed to be an unique case, because, in a mouth where all the teeth were perfectly round externally, no caries having ever appeared in any of the teeth, one root of each of the first four molars had abscessed and necrosed, causing death of the pulp, the abscesses having been chronic for some twenty years when the case came under Dr. Walker's care in the spring of 1892. At that time an angry looking tumor had developed on the gum, exciting the apprehension of the patient, who then applied for relief. Examination showing the posterior root of the lower first molar to be denuded of pericementum and therefore incurably abscessed, it was decided to amputate the diseased root. The tooth was opened through the perfect crown, the putrescent pulp removed from the anterior canals and pulp chamber. The posterior root was then amputated on a line above the gum margin to the point of bifurcation, the other canals properly filled, the pulp chamber being filled with gutta-percha, which was pressed through the opening at the point of amputation, and smoothed off on the under side with a warm instrument. The morsal opening was filled as usual. Nothing was done to the other first molars; the tumor was left to take care of itself, the source of irritation having been removed. Three years later—this present spring—the patient requested that the same operation be performed on the other three first molars, the first proving a perfect success. The tumor had disappeared, the tissues were healthy, the socket had entirely filled up, and the gum fitted in under and around the projecting posterior portion of the crown, so that, except by close examination with an instrument, no one would suspect that the tooth had only the anterior root. The posterior root of the right lower first molar, and the lingual root of both of the upper first molars being in a similarly abscessed and necrosed foul condition,

coated with serumnal calculus, last March they were operated on in the same manner, with promise of retaining three more good teeth for the patient.

"A Suspension Denture;" a clinic by Dr. C. L. Alexander, Charlotte, N. C.; at the Mississippi Dental Association, April 4, 1895. By this method the natural teeth are not devitalized, nor are they subjected to any cutting, beyond that of drilling a hole in the labial surface for the reception of screw-posts, which serve as points of support for the denture. In this case the superior left lateral and right central incisors were to be supplied. A narrow band, or skeleton attachment, was accurately adjusted to the lingual surface of the remaining central and lateral incisors, with arms extending to each of the cuspids. On the band a hollow receptacle was constructed, partially filling the spaces of the teeth to be restored, with holes on the anterior wall to receive the long pins of bridge-work facings. These were secured in place on the attachment by bending the ends of the pins within the receptacle, which was then filled with cement, protected at the open end from the fluids of the mouth by amalgam. Screw-posts having been previously inserted in the lingual surface of each of the cuspids and the central incisor, with corresponding holes in the band of the denture, the piece when finished was slipped over the pins, which retained it in position securely, similar pins in the teeth of the model having served as guide posts during the construction of the piece. By this novel method the natural teeth are neither cut nor banded, no gold appears at the labial surface, and the denture does not depend on cement for its retention.

The Dental Cosmos for June, 1895.

"A Case of Nasal Prosthesis," by Dr. M. W. Hollingsworth, Santa Barbara, Cal. While it may not be considered within the province of dentistry to make and adjust an artificial nose independent of an obturator, it is nevertheless quite within the domain of mechanical dentistry to supply a deficiency of this character by the use of such materials and devices as are possessed by the average practitioner. Experience warrants the statement that work of this nature demands no greater skill, artistic or

manipulative ability, than that required in the construction of crowns, bridges, or work of like character in general practice. The case presented was that of an old lady who had been afflicted with a cancerous growth which resulted in the loss—by a surgical operation of the greater portion of her nose, leaving seemingly healthy tissue. However, on account of her age, and the fear of a recurrence of the disease, she was deterred from resorting to plastic operation for restoration. The loss was confined to the cartilaginous portion embraced within lines which might be drawn from the upper termination of the septum articulating with the bony structure, downward on either side of the median line, to a point midway between the lower lateral cartilages and the cartilages of the nose, which were without power of muscular dilation. The greater portion of the septum remained intact.

My first effort was to obtain a complete reproduction or model in plaster, without distortion; and in order to obtain this it was necessary to give reliable inner support to the wings of the nostrils, to counteract pressure from the weight of plaster used to obtain the conformation of external surface. For this purpose well-softened modelling compound was first used and applied upon the end of a pine stick, especially formed and of convenient length. Pressed well up into each air-passage, the compound yielded a fairly accurate impress of the inner walls, but was destined to serve only as a vehicle for the ever reliable plaster-of-Paris, for which room was made by slightly trimming the surface of the compound upon removal. The nostrils being well oiled and otherwise prepared to prevent adhesion, the modelling compound forms, coated with plaster of creamy consistency, were again inserted, the plaster admitting of reaction from possible distortion before hardening. After the impressions were thus obtained, the projecting ends of the pine sticks were removed close to the nose, in order to prevent distortion by leverage. The wings of the nostrils being now supported from within, the external surface was thickly coated with plaster on one side, from cheek to median line, leaving a grooved perpendicular wall. This was shellacked and oiled in order to insure easy separation from a similar coating upon the other side. When well hardened, the lower extremity of the mask thus formed was surfaced, grooved, and otherwise prepared for the lower section, covering the ends of the two upper

sections, as well as the forms in the nostrils, and embracing also a portion of the lip. The three sections were then removed inversely to the order in which they were applied, and again put together and prepared to receive plaster for the cast. The intro-nasal forms were preserved for future use.

After determining the individuality of the natural nose, from photograph and otherwise, I proceeded to build out and form in wax upon the cast a model of the artificial substitute, the manner of attaching which now demanded attention. As external methods were, as far as possible, to be avoided for obvious reasons, preparation was now made for internal support. Here I was confronted with the question of obstruction of air-passages. Naturally, this was to be avoided by properly constructed tubes, for which gold was used, formed in the following manner: Use was made of the intro-nasal forms, as models in which to obtain metallic castings upon which the tubes were to be contoured. In order to prevent irritation, the edges of the upper and lower ends of the tubes were turned inward, thus leaving the terminations slightly rounded. To the upper surface of each tube, on the septum side, were soldered strips of gold extending outward, to act as tangs for attachment. These tangs, bent inward, close up to the septum, formed a bridge over it when soldered together, the manner of obtaining the proper relative positions for which was as follows: The tubes were placed in proper position, and, by aid of a small pair of tongs suitable for the purpose, each was pressed toward the septum, and, while in this position, a small quantity of plaster was placed around the projecting tangs and allowed to harden, when all was removed. This done, the tubes were sufficiently imbedded in sand and plaster to admit of soldering. The ends of the tangs remaining unsoldered were bent over right and left, at a proper distance from the tubes, in order to form an anchor-head required for the vulcanite attachment.

The previously prepared wax model was now applied to the nose and secured to the anchor-head in proper relative position, with the aid of a small quantity of plaster. When safely removed, the familiar process of enflasking was next in order, and, with tubes uppermost, the nose was imbedded to the margins of external surfaces, the tubes and the inner surface of wax remaining exposed for the upper half of the flask. Packed with rubber of

proper or approximate color, the flask was placed in the vulcanizer. But little surfacing was needed in the process of finishing, as flesh tints in oil colors were yet to be applied, and a glossy surface was not desirable. All excess of rubber was removed from inside of the nose close up to the anchor-head of the tubes, thus leaving a light and strong shell. When the two or three coats of paint were applied and thoroughly dried, glossiness was reduced by slightly rubbing the surface with pumice. The upper edge of the nose was held in position by small spring-wire attachment to the spectacles. The work was comparatively simple, successful, and gave perfect satisfaction.

"Two Cases of Infantile Scorbutus," by E. C. Kirk, D. D. S., Phila., Pa.; read before the New York State First District Dental Society, March 12, 1895. A paper recently read before this society calls attention to the deleterious effects upon the teeth of the continued use of the proprietary foods for the feeding of infants. I have been studying for years with especial care a number of cases of complete decalcification of the primary denture in which a common factor has been the habitual use of this class of preparations. I have seen several such cases where decalcification of the six upper front teeth had progressed until nothing but the organic matrix of the tooth remained as a spongy flexible mass, which subsequently succumbed to rapid disintegration. The saliva in these cases was found to be constantly acid. The children were usually highly nervous and irritable, markedly cachetic, and prone to catarrhal inflammatory troubles. I have been able to effect a marked improvement in a few instances, so far as the systemic conditions are concerned, by suggesting a wholesome, nutritious, and varied diet, with out-door exercise and intelligent hygienic care. Where such directions have been faithfully carried out, the second dentition has been most satisfactory, the condition of the oral secretions has become normal, and the carious tendency was but slight. It is important to note that when the oral conditions to which I have alluded prevailed, an inordinate amount of saccharine matter was given, either in the form of candy or sugar, or with the food. The primary denture, with its relatively inferior powers of resistance to chemical action, cannot stand such a diet. There is an im-

portant side to this matter of infant nutrition, which investigation will prove to be a definite outgrowth of the pernicious custom of *depending altogether* upon proprietary and chemical-laboratory food products, viz., the systemic nutritional disorders caused by this custom, because of the inadequacy of such foods to supply all the elements necessary for normal nutrition.

Two closely allied conditions directly due to imperfect nutrition are rickets and scorbutus. I would call attention to the latter, which is certainly caused by the continued use of one class of foods, and is rapidly and permanently cured by the substitution of another class. In this disease alterations take place in the blood, and the amount of potash in both blood and urine is diminished.

About six years ago the late Dr. J. W. White called my attention to a case presenting a remarkable condition of the gums. The patient was an infant girl ten months old, parents well-to-do, and surrounded by every luxury. She had been weaned at two months, and had afterwards been artificially fed with great care. A short time before I saw the case the child had shown symptoms of ill-health, becoming pale, somewhat emaciated, restless and irritable, especially at night, with a tendency to cry out in its sleep, which was more or less broken and fitful. Later, there ensued an almost total motor paralysis of the lower limbs, but apparently no loss of sensation. So far as I could learn there were no pathological manifestations upon the skin, or swellings or ecchymoses. The mouth was in a very bad condition. The incisors of both jaws were fully erupted, and were apparently standing in their alveoli without the least particle of attachment of gum to them. The gingival border had receded from the teeth for at least a line in distance, and presented a thickened necrotic edge, highly vascular, and bleeding at the slightest touch. Over the position of each of the first molars was a vascular tumor, the size of half a cherry. Upon passing a bistoury into these vascular tumors, a considerable flow of dark, apparently disorganized blood took place, and the erupting molar could be felt, and later seen at the bottom of the spongy vascular mass which surrounded it. The bone of the alveolar border surrounding the incisors was denuded so that it could be distinctly seen, and felt with an instrument. The teeth were so loose that it seemed almost certain that they would soon be thrown out of their sockets from loss of

their attachment. The case had been examined by a number of the most experienced physicians of Philadelphia, without having arrived at a satisfactory diagnosis, and the treatment was to combat the several pathological manifestations as they arose. One specialist had diagnosed the case as purpura, another as metallic poisoning. The former diagnosis was found to be erroneous because none of the general symptoms of the disease subsequently developed, while the mouth conditions grew gradually worse.

Acting on the suggestion of metallic poisoning, analyses of the milk, water, and all the food-materials used, were made with negative results. Antiseptic washes were used in connection with stimulating applications in the local treatment of the oral conditions. After all available resources had been exhausted without benefit, Dr. White sent the almost dying child to Atlantic City, changed its diet, and it gradually recovered.

Dr. White tried antiscorbutic treatment, thinking that the disease might be scorbutus, but abandoned it owing to its bad effect on the patient, and because sewer gas was found in the house, which latter fact convinced all concerned that the disorder was of the septic origin. Recent developments have, however, led me to regard the case not as one of septic origin, but as a fairly typical case of infantile scorbutus, more especially as I have recently studied an almost exactly similar case, where there was no possible chance of septic infection, and where the institution of an antiscorbutic treatment resulted in an almost immediate improvement and rapid recovery.

In cases so far observed, in no single instance at the time of the onset of the malady has the child been breast fed. In most cases the infants have been fed upon preserved foods, and have been of the well-to-do class. The disease is on the increase, as there is a growing tendency for mothers not to suckle their infants. After whole milk has been found to be insufficient, a varied diet is needed.

Discussion: Prof. W. P. Northrup. Scurvy is apparently a dietetic disease. It occurs as a malnutrition. The lesion is hemorrhagic. The hemorrhage occurs deep under the periosteum, preferably of the femora, and of the leg next, giving a fusiform swelling to one or both thighs; next in importance is an intramuscular hemorrhage giving rise to painful nodules; hemorrhage

beneath the skin giving rise to the well-known "black eye" and "black and blue" spots; hemorrhages underneath the skin causing pin-points, petechæ, and "flea-bites;" hemorrhages in the mucus membrane which show themselves in the vomited matter and in the discharges from stool. All of the elements of the blood pass through the walls of the vessels in some way, without any demonstrable lesion. The walls apparently are intact. There is no sensation of pain more exquisite than the lifting of the periosteum from cedema. So a child has excruciating pain in its legs during the very first stages of scorbutus. Being usually in the lower limbs, the first symptoms are those of rheumatism of the legs. Often in a case of rheumatism of the legs, when the gums are examined, a verification of the presumable diagnosis is found. Scurvy usually occurs between the ages of nine and sixteen months. The cure is good air, good milk, and fruit-juice of any kind. *If the nurse tells you the baby has rheumatism of the legs, and you find spongy gums—that is scurvy.* This lesion of the gums is merely a hemorrhagic gingivitis, an excessive vascularity of the vessels, with a tendency to interstitial hemorrhage. The lesion is primarily a dilatation of the fine vessels.

Dr. Floyd M. Crandall. The majority of the cases are found in the better class, and scurvy is not a disease of large cities and tenement houses, nor do unhygienic conditions form an important feature in its production. A tenement house child eats about what his parents eat; he is subject to diarrhea, marasmus, and rickets, but is free from scurvy, for he gets some fresh food; while the well-to-do child is so well cared for, and his diet is so strictly regular, that if it lacks the fresh element he is liable to scurvy. The lack of fresh food and the prolonged and exclusive use of proprietary foods and condensed milk will cause scurvy in *any* child, regardless of surroundings, constitution, or previous condition of health. Fresh cow's milk, beef-juice, and orange-juice are the only remedies needed.

Dr. M. L. Rhein. The change of regimen alone will hardly bring about a complete restoration to health, for we find, in treating this form of pyorrhea, that while the change may produce a considerable restoration to health, the local symptoms, if not treated locally, will remain, because of the peculiar situation that they are in. That is to say, they are in the mouth, filled with

bacteria, where, unless local antiseptic treatment is applied, the simple constitutional treatment will be unable to bring about a complete restoration to oral health.

"The Scientific Spirit and the Ethics of Dental Practice," by Dr. C. J. Essig, Phila., Pa.; read before the Academy of Stomatology, April 23, 1895. It is often asserted that there is no *esprit de corps* among dentists, and the frequent instances of disregard of the code of ethics on the part of individuals, and the unscientific spirit in which many of them view the lesions of the organs which it is their specialty to treat, make a bold contrast between the high aims of the profession as a whole, and the practice of a large number of its members. In our societies, current literature, and colleges, in the free and liberal professional intercourse which has been steadily growing for more than a generation, may be found the most gratifying improvement over the time when the tendency was to conceal every invention, device, or detail of practice. We should not attribute every violation of the strict interpretation of the code of ethics to a want of honor or to greed; much of it is doubtless due to absence of the scientific spirit which should guide the practitioner in the treatment of the dental organs. The remarkable want of concordance in diagnosis and treatment; the absence of *esprit de corps* and indifference to the ethics of questions of judgment between dentists, especially when, as is too often the case, the patient is made a party to controversies growing out of difference in treatment, has undoubtedly been a serious injury to our profession in the estimation of the public. The dental profession cannot hope to gain or to hold the highest respect of the people while its individuals exhibit the ethics of the artisan.

Not long ago a lawyer asked me, "Is there no *esprit de corps* in your profession?" Said he, "A relative of mine whose teeth had just been examined by a dentist of high standing and pronounced in good order, called upon another member of your profession in a neighboring town who claimed to have found a large amount of work to be done, and has so shaken the confidence of my relative that he and some of his family have left their family dentist. Now if this incident merely indicates an honest difference of judgment, then there must be some serious defect in your system

of professional education; but if this difference of opinion is, as I suppose, actuated by a commercial spirit, there should be a penalty made to follow such unprofessional conduct severe enough to make it unprofitable for him to repeat it."

Neither from the prophylactic nor therapeutic standpoint has dental caries been sufficiently studied as a disease. Dentists have been so engrossed in the artistic treatment of the teeth and the development of mechanical appliances that a rational systemic treatment has been almost entirely overlooked. Caries of the teeth may with as much propriety be considered a disease as any lesion affecting the different organs of the body, yet any of these may be controlled or cured by medicinal or hygienic treatment. A properly regulated diet, with systematic physical exercise for the purpose of promoting assimilation to the extent demanded by nature for a normal condition of all the organs of the body, would do much to control and even cure dental caries. Many of our young patients have really no physiological right to have teeth, so perverted are all the nutritive functions of their bodies. Does it not then seem that a more rational treatment would consist in a hygienic system which would so build up the tooth-structure that it would be capable of retaining the mechanical stopping over which we spend so much time, skill, and patience, and that would reduce the chances of a recurrence of caries to a minimum?

The Dental Review for June, 1895.

"What a Dentist Saw in Examining Five Hundred Crania," by M. H. Fletcher, M. D., D. D. S., Cincinnati, O. In the examination of five hundred crania, making one thousand antra, my conclusions were that the teeth were as often, or oftener, made pulpless or otherwise pathologically affected by diseases of the antrum than the reverse. One important feature is that the dental follicles holding the crowns of the superior molar teeth, in normally shaped antra, are usually formed at the expense of that cavity, each follicle being covered with a dome which protrudes into the floor of the antrum, while the tooth is being formed and pushed into the mouth; this dome flattens out and disappears by the time the tooth is completed, excepting in rare cases; and it seems a perfectly natural result, when we remember that the alveolar process is formed only after the eruption of the teeth, its po-

sition and shape being entirely governed by the position and shape of the teeth; there is then, no other place where the crowns can find space enough for their development, but the one mentioned, at the expense of the antrum. The finding of some of these domes in the floor of the antrum, in connection with some bony processes, may account for the description by anatomists, to the effect that the roots of the molar teeth protrude into the floor of this cavity, and are either bare or covered with bone, forming numerous bony tubercles corresponding to the apices of the sockets of the teeth. Other authors taking these as authority have perpetuated this statement until it seems the prevailing opinion that this is the normal condition.

Contrary to general belief, it is the exception rather than the rule when the apices of the roots of the second bicuspid and the buccal roots of the molars are in contact with the floor of the antrum.

An interesting fact noted was the almost total absence of dental lesions of any character in the mouths of Northern Indians and Esquimaux. The cases of abscesses in these tribes show about three per cent., whereas the cases of abscessed teeth in the Mississippi Valley Indians were about thirty per cent. The latter tribes suffered an enormous loss of teeth from tartar, the teeth having been partially and even totally destroyed by phagadenic diseases. These facts are significant because the food of the two classes was so different; the northern tribe living almost entirely upon meats and oils, which are free from grit and need but little mastication, while the tribes living in temperate or torrid zones lived more largely upon vegetable diet, containing more or less grit. The vegetable substances usually need more mastication than meat before they can be swallowed, and, while the chemical difference between animal and vegetable foods may cut some figure, I believe the mechanical feature is the greater cause for difference in structure and loss of teeth.

Considering the lack of surgical and medical attention, and that about twenty-five per cent. of them had abscessed upper molars, these people were remarkably free from antral diseases. Out of two hundred and fifty-two cases of abscessed upper molars, only twelve perforated the antrum. This seems to be a point in favor of claiming that abscessed teeth do not cause

antral trouble as often as most authors claim they do, in comparison with other causes of inflammation of this cavity. My reason for believing that the teeth are affected by diseases of the antrum is, that "In some cases the floor is perforated by the teeth in this situation." (Gray.) About four per cent. of persons have, normally, nothing covering the apices of these teeth but mucous membrane. These normal openings occurred where the floor of the antrum was comparatively flat, and not where there was a conical process, and the cases where the conical process occurred were almost invariably covered with a considerable thickness of bone. These conditions being present, it would seem a natural result, when the mucous membrane of the floor of the antrum becomes broken down for the blood and nerve supply of teeth so perforating the floor, to be interfered with and possibly entirely destroyed, since the apical foramen of the teeth must be exposed to these destructive influences. If accurate statistics could be had, they would indicate ten to one in favor of intranasal disorders being the exciting causes of antral diseases.

"Malpositions and Partial Eruptions of the Third Molar," by Thos. L. Gilmer, M. D., D. D. S., Chicago; read before the Chicago Dental Society. The upper third molar is not so prolific of evil results when misplaced as is the lower, neither is it so often partially erupted. Any of the six anterior teeth are more apt to be out of alignment than the third molars. Probability of misplacement or partial eruption is increased by short jaws and large teeth. The positions of teeth out of alignment do not vary materially in different mouths. For instance, on the upper jaw the most common abnormality is in those in which the third molar is placed on the buccal side of the arch, or toward the cheek. Generally this is not a cause of disturbance; when it is, the tooth should be removed. If the tooth is not much out of place, but is decayed and its rough edges cause irritation, its value and the practicability of restoration must determine treatment. In cases of elongation of the upper third molar, caused by the absence of an antagonist, the gum on the lower jaw may be injured and inflamed by occlusion, or the tooth may be forced backward by a partial occlusion with the second molar, and by the wedging in of food. The space thus gained invites decay,

which will probably occur in the distal surface of the second molar and in the mesial surface of the third molar; the peridental membrane of the third molar becomes irritated and inflamed, so the tooth should be extracted. The upper third molar rarely presents lingually, and serious inflammations seldom accompany its eruption. The lower third molar when misplaced or tardy in eruption is more frequently the cause of serious results; this is attributable to the anatomical difference in the two jaws and to gravitation. Malpositions on the lower jaw are not so productive of disturbances as are tardy and partial eruptions.

Not an uncommon position occupied by the lower third molar, which is often productive of serious conditions, is when the tooth presents with its anterior cusps against either the cervical portion of the distal surface of the second molar, or against the lower third of the distal root of this tooth. This position has been known to cause absorption of the root of the second molar, resulting in serious neuralgic pain. It also affords a deep pocket for the lodgment of food and micro-organisms, which causes injury to the crown of this and the tooth adjoining. The extraction of this tooth is often an exceedingly difficult operation. To facilitate its removal it may be desirable to cut a section from the mesio-occlusal surface, as it is often so lodged below the swell of the coronal portion of the second molar that otherwise it is almost impossible of extraction without injury to the latter tooth. Many lower third molars make trouble by not fully erupting, and the antagonist being sufficiently elongated, the gum is bruised, and this, with the accumulation of septic matter under the operculum causes a bad condition, with intermittent inflammation. If the tooth is of value, cut away the operculum of gum, but never until the inflammation is under control. To control this, thoroughly clean the pocket. If there is much pain, take crystals of muriate cocaine and grind them in ninety-five per cent. solution carbolic acid, and apply under the operculum. If this does not relieve the pain, use hot water externally, and, if necessary, anodynes internally. The operculum is best removed by galvano cautery; the operation is bloodless and no more painful than when other means are employed. Following the removal, use antiseptics until the parts are healed.

The International Dental Journal for June, 1895.

"A Method of Inserting Gold Fillings with the Use of Hand-Burnishers, as Practiced Exclusively for Seventeen Years," by Dr. Henry F. Libby, Boston, Mass.; read before the American Academy of Dental Science, Dec. 5, 1894. The writer says that by this method his patients are benefitted; their sufferings are lessened to at least one-half of the usual pain. When the cavity is prepared the pain ceases, comparatively speaking. Many delicate teeth filled with cement and gutta-percha can be treated successfully; also, many fillings with discolored margins can be restored for better adaptability of gold to their frail enamel walls. Teeth that have been given up as lost are restored to beauty and usefulness. The rapidity of the work is increased at least one-third. You all know the meaning of the distribution of forces, how the molecular structure of a tooth takes it up and passes it along, or if its impact becomes too intense, that it disintegrates the enamel prism. It is understood by you all how sharp concussion acts upon any solid body, and you cannot fail to see that the same force applied slowly will be redisturbed (distributed? Ed. *Digest*) without injury.

"Plastics as a Bar to Bacteria," by Joseph Head, D. D. S., M. D., Philadelphia; read before the Odont. Society of Penna., Jan. 12, 1895. On superficial observation it might be thought that wherever moisture could penetrate so could bacteria; but this does not seem to be the case, as bacteria have not yet been found in normal dental tubules. Before decay can take place some free acid must first decalcify the enamel and the orifice of a tubule. In this enlarged opening the bacteria may enter, when devouring the gelatin it excretes acid, which, dissolving more of the lime salts, allows the germ to penetrate farther in. The ideal filling should be composed of a material that is water-proof, adherent, and a non-conductor of heat. And, moreover, a material that can readily be placed in the cavity without the slightest danger of marring the enamel edges.

Gold, while it can be made to exclude bacteria from its own substance, and from entrance at the edges of the filling, is a good conductor of heat, and can be sufficiently hammered to make a perfect seal in teeth of dense structure only. There is no doubt

that gold can be made water proof; teeth have been partially contoured one day and completed the next, perfect welding having been accomplished after the thinnest film of the moistened gold has been removed. But soft foil fillings that have such a record for preserving teeth have been put in under water with lasting results. Does this filling preserve the teeth by starving out the micro-organisms? This supposition can hardly hold, as soft foil fillings have been removed from cavities in a punky, evil-smelling state by means of the explorer, and the dentine beneath appeared sound and dense.

Tin would seem pervious to moisture, as any old filling can readily be separated into portions that only partially adhere. It has not been proven, one way or the other, whether it admits bacteria; but at least it can be said to preserve tooth structure in a manner very similar to soft foil.

Amalgam in itself is water proof, but leaks at the cavity margins. Reducing the mercury to a minimum will do much, but usually all amalgam fillings show some slight shrinking from the enamel after five or six years time. But even granting that all these fillings have been badly put in, we still find, when the bulging edges have been trimmed, that in spite of a palpable leak in many instances the cavity remained sound. It may be affirmed that metallic rust gets into the tubules and protects them, but this can hardly be accepted as conclusive.

Oxychloride of zinc and oxyphosphate of zinc, although adherent to the tooth walls, are readily penetrable by moisture and bacteria. Cones of these materials were made, having a hollow space within that was absolutely excluded from the outer air. Some of the oxychloride of zinc cones were made from calcined powder, some from the uncalcined; the former became extremely dense. These cones were sterilized in a steam bath by the intermittent process in the following way: First, they were boiled in water two to three hours; then removed from the bath and placed in glass jars, the mouths of which were closed with absorbent cotton, and subjected to steam over the water-bath for an hour. They were then allowed to cool for seven hours in an atmosphere of about 70 degrees F.; again subjected to steam for one hour, and cooled over night. Next morning again heated for about an hour; allowed to cool eight hours. Four hours steam heat, twenty-four

hours to cool; one hour steam heat, allowed to cool, and then placed in a bath that after being first sterilized had been tainted with a decayed tooth. At the end of five days immersion they were taken out and opened. The bouillon had filtered through the substance to the hollows inside. The bouillon found within was swarming with micro-organism. The steam bath did not have the slightest effect on the oxychloride of zinc, but the oxyphosphate, from being very dense, seemed much softened. This might seem to depreciate from the value of that particular experiment, but it would still seem probable, if the micrococci could pass through strong oxychloride, that they could also pass through the oxyphosphate, that is so similar to it in substance. On drying the opened oxyphosphate cones, small, shiny crystals lined the inside, which looked not unlike free phosphoric acid that had not become chemically united with the powder. And yet the cones before boiling were extremely dense.

Gutta-percha, although practically if not absolutely impervious to moisture, invariably leaks at the cavity margins. The experiments with it were as follows: Three canine teeth were taken and opened from end to end. The surfaces of the canals were thoroughly drilled away. One end of each was filled firmly with gutta-percha. A small pellet of cotton soaked with sterilized broth was then placed in the canal. The remaining openings were then dried and filled with gutta-percha. These were sterilized as follows: Two and a half hours in steam bath, four hours to cool, one hour in boiling water, two hours in steam bath, seven hours to cool, two hours in bath, two hours to cool; then placed in tainted broth for five days. At the end of that time they were taken out, dried and passed rapidly once or twice through a Bunsen flame. The gutta-percha was then removed with a heated instrument, the cotton was taken out by tweezers previously sterilized in the flame, placed on a clean glass slide, and wet with two drops of distilled water. This water was then found to contain large numbers of bacteria.

And yet all these filling-materials save teeth, and save them well. Especially is it the case with cement and gutta-percha, that stop decay when nothing else will. These last preserve the cavity walls, and yet allow the bacteria to enter. This seems a paradox and is difficult to explain. One might say that bacteria need air and food; that cement and gutta-percha shut the germs off from

these necessities, and thus render them dormant. But this does not to my mind reveal why some soft, spongy, malodorous soft-foil fillings have preserved the dentine beneath from further decay.

Ash & Sons' Quarterly Circular for March, 1895.

"Cork-Bandage in Haemorrhage after Tooth-Extraction," by Otto Torger, of Prague. Hot water usually will stop severe haemorrhage, as it induces a more rapid coagulation of the blood than cold or tepid water, and is particularly serviceable with anæmic persons. It is to be applied as hot as the patient can bear it in the mouth, and some permanganate of potash should be added to the water for disinfection of the wound. But this treatment does not always succeed. Especially in extractions in the lower maxilla (molars) there occurs not infrequently after-bleeding, and it is in connection with this that I mention the cork-bandage. It is applicable in all cases where there is a tooth in front and one behind the wound left by the extraction. It is chiefly to replace plugging by means of finger-pressure, and, moreover, possesses solid advantages for the patient. The cork-bandage consists of a piece of cork cut in such a manner that it can be wedged between the two neighboring teeth of the one extracted. The thickness of the cork must project somewhat above the teeth left standing in the mouth. Supposing the twelfth year-old molar on the left side has been extracted, and severe hæmorrhage supervenes. Behind the wound caused by the extraction stands the third lower molar, in front of it the sixth year molar. Having laid the wound bare by syringing the mouth, I take a good cork and cut it to the shape indicated. I then plug the wound with a piece of cotton-wool steeped in ferrum sesquichl., then place upon it a small plug of pure cotton-wool, and press the shaped cork between the neighboring teeth. The cork-bandage must sit so tightly that the patient feels a pain from the pressure. I then request the patient to close the mouth, and afterwards make an examination, to see that the bandage has not been shifted from its position through the closure. The advantages for the patient are as follows: If a simple plug of wool were used, the lower maxilla would have to be fixed against the upper, and for a time the patient would be unable to eat, not to mention the trouble this fixture would cause him. With the cork-bandage, however, the patient can open and

shut his mouth, and is able to eat and drink without the bandage being loosened. Furthermore, nothing can penetrate to the wound, as the bandage covers it for the whole width of the alveolus. As a rule, it suffices to leave the bandage in position for twenty-four hours.

The British Journal of Dental Science for June, 1895.

"Formaline," by Dr. G. Forssman, Tandlakare, Stockholm. Formaline is a solution of formaldehyd (methylaldehyd) CH_2O or H. COH in water. The water absorbs forty per cent. of the gas. It has excellent qualities as a hardening fluid. If a finely dissolved solution be sprayed on walls, wall-paper, and furniture, its disinfecting power extends to a good depth, destroying pathogenic bacteria and their germs. Experiments have been made with one to ten per cent. solutions. A one per cent. solution is fully reliable as regards making wounds and instruments aseptic. Silicious earth absorbs formaldehyd, and little by little gives it off again, so may be used in the surgery and in the instrument cupboard. A strong solution of formaline, thirty per cent., causes pain to the epidermis, the mucous membrane of the mouth, and in deep cavities, so that in the first mentioned, the epidermis hardens and is afterwards thrown off, while in the two latter no inconvenience at all arises. A solution of one per thousand can be used for rinsing the mouth and throat. When treating partially inflamed pulps, a one to five per cent. solution gives a satisfactory result, for besides being an antiseptic, formaline also acts as an astringent. A filling can at once be placed above a cauterized and amputated pulp which has been treated with a thirty per cent. solution, if a piece of carbonized wadding be dipped in the solution and applied to the roots of the pulp. After being treated with such a solution for twenty-four hours the roots of the pulp are found to be gray and hard though elastic. For disinfecting teeth with gangrenous pulps, root canals that have been open for a long time, alveolar abscesses, and periosteal inflammations, the same can be used with great success; in root canals, solutions of twenty to thirty per cent.; in alveoli or abscess cavities, solutions of one to five per cent., according to the quantity it is possible to use. The pain that may possibly arise when injecting it in the alveolus, or when syringing it, is easily alleviated by cocaine.

The Dental Practitioner and Advertiser for April, 1895.

"Aluminum as a Base for Artificial Dentures," by E. R. Johnson, D. D. S., Buffalo, N. Y. Some urge that the metal is soft and very pliable after it is swaged. Improper annealing is the usual cause of soft, pliable plates, the usual method being to coat the metal with sweet oil, then to hold it in the flame of a Bunsen burner until the oil has burned off, when it is immediately plunged into cold water. This softens the metal, but leaves a surface tension which is objectionable at this stage of the manipulation, for it makes a re-annealing necessary before the swaging is finished. This again softens the metal, and as it has already taken on the shape of the intended plate, there is not enough swaging and manipulating to be done to temper it again, while if it is not annealed the metal becomes so rigid that perfect adaptation and the avoiding of wrinkles in the plate are almost impossible. The surface tension is accounted for as follows: Before annealing the metal the crystals are all elongated by the rolling of it into sheets. When the metal is heated for the annealing, the crystals tend to assume their original molecular arrangement, but when the metal is plunged into the cold water the molecules become stretched in taking their normal position, so that the outer surface or the outer layer of the crystals has assumed this surface tension. Another proof that the molecules change positions and shape, can be observed if one will try the metal in a gauge before and after annealing. If it is twenty-four before annealing, it will be found to be twenty-five afterwards. If one would avoid this surface tension, he should be more careful about annealing and swaging. After the metal has been coated with oil, and this burned off in the Bunsen flame, it should be allowed to cool down gradually. It will be found that it takes some time to do this sufficiently to permit handling, but if it be carefully attended to it will permit a perfect molecular arrangement, and it will be found that the metal is much softer than when annealed in the old way. It will also have increased in thickness from a twenty-five gauge to a very tight twenty-four.

In swaging the metal the palatal portion should be swaged first. This can most easily be done by banking the die with moulding sand up to the ridge, and simply making a counter die of the palatal portion. Swage from this, and then hammer the

metal over the ridge into place as nearly as possible. It will be found that it works very easily, and that wrinkles are handled with the utmost ease. After it is well beaten to place, a new counter die is run, as in the ordinary way. Finish swaging from this. It will be found that the metal is very materially condensed between the die and the counter die. Another reason why the metal is found too soft, is that the vulcanizing is done at a point that is too high. A temperature of 350° will soften the metal. Where vulcanizing is done at 320° , the inside of the vulcanizer will be at least 340° , and should the vulcanizer run up a few degrees above 320° , as is often the case, the metal will come out soft. The vulcanizing should be done at 300° , for an hour and thirty minutes. In conclusion, let me suggest that the metal be placed so that the former grain shall be transverse, or from heel to heel.

Proceedings of Midwinter Fair Dental Congress.

"How to Induce our Children to Cleanse their Teeth Regularly," by J. C. McCoy, D. D. S., Santa Ana, Cal. Among intelligent parents who are alive to the best interests of their children, the question of training them in the care of their teeth is considered not only a very important one, but also a very difficult one to solve. Many careful mothers ask me the question: "How can I induce my child to attend properly to his teeth without continual prompting?" The best answer I can give is to tell of a plan I have adopted in my own family of four boys, where I find it more satisfactory than any previous method. The first thing to do is to supply the children with necessary appurtenances with which to do the work. Medium brushes, both in size and stiffness of bristle; pleasantly flavored tooth-powder in a wide-mouthed bottle, so the brush can be dipped into the bottle; and last, but not least, plenty of water, and encourage them to use water freely in cleansing their mouths. Each child should have a place, both safe and convenient, in which to keep his brush, powder, etc.

Children should be taught the use of the brush as soon as all the temporary teeth are erupted, and if the parent is faithful to the trust, at four years of age the child will take the care into his own hands, with necessary encouragement and instructions on the part of the parent.

To induce my boys to clean their teeth regularly, I offer a re-

ward of one cent for each time, and require them to clean them three times a day: first, when face and hands are washed on rising in the morning; second, immediately after the noon meal; and third, just before retiring, urging them to special care and thoroughness at this last cleansing. Thus, if they are faithful, they receive three cents each day, and an additional ten cents at the end of every month, making one dollar for thirty days; but if neglectful they forfeit one cent for each time omitted. The account is balanced at the end of each month.

The best way to keep the account, and at the same time teach the children system, is to tack up in the bathroom, or wherever they clean their teeth, a sheet of paper with thirty lines, (one for each day of the month,) with pencil attached. The child can make a mark in the proper line each time he cleanses his teeth, and at the end of the month the account is easily reckoned. The most pleasant part to the child is pay-day, and this should not be neglected. Balance the books carefully, and pay promptly; and allow them to use the money as they choose. I have not found it difficult to encourage them to spend it for some useful article, or to enjoy it in some innocent pleasure.

My experience in adopting this plan has been most encouraging; and if in this way I can induce them to care for their mouths, so that they may be possessors of that most useful adornment, a fine set of teeth, I shall feel most richly repaid. They are taught that scale, or animalculæ, gather in a mouth and on teeth that are not cleansed; and that the only way to keep the horrid creatures (we call them bugs in the citrus belt) off the teeth is to brush them frequently. Teach the child disgust for uncared-for teeth, and the battle is half-won. Not many mornings ago I was somewhat shocked and very much amused on entering the bathroom, where my four-year-old hopeful was scrubbing his teeth with powder and *hot* water, to hear him exclaim in the most triumphant manner: "Papa, I'm scalding the bugs!"

Transactions of the American Dental Association.

"An Etiological Classification of Pyorrhea Alveolaris," by Dr. M. L. Rhein, New York. The various forms of pericemental inflammation, with their purulent discharges at the gingivæ and the subsequent loss of tissue, have been among the questions most

disputed in discussion for some years. The etiology, pathology and treatment of this disorder will continue to furnish fields for "battles royal" at our meetings until science succeeds in vanquishing this destroyer of the dental organs.

Too much valuable time has been consumed in discussing the various names that have been given to these conditions by different men. For years this disease was known by the name "Riggs' disease," in deference to the man who first called public attention to the feasibility of combating its ravages.

In 1877, at a meeting of this Association, the name of "pyorrhea alveolaris" was first introduced by the late Dr. Rehwinkel. The name was used in France previous to that date. After seventeen years of discussion, notwithstanding the objections of some of our ablest men, this name has secured a firmer foothold than ever. You might as well endeavor to eliminate dyspepsia from the nomenclature of general medicine as attempt to abandon the use of the term pyorrhea alveolaris.

The name expresses clearly the clinical feature of a flow of pus from the alveolus at its gingival border. It has, however, been used indiscriminately by different men for every form of this disease, simple or severe, and has thus led, especially in discussion, to great difficulty in understanding what particular form of pyorrhea might be intended by different men.

Obviate this difficulty, and one source of contention is removed, and we can then devote ourselves to the more important fields of investigation and results, without having our time wasted by continued objections to the various proposed names, the discussion of which has so often resulted in drawing away our attention from the more important features of the subject.

With this object in view, I submit for your consideration the following plan of nomenclature:

Retain the name pyorrhea alveolaris as generally descriptive of any condition where there exists a flow of pus from the gingival border of the alveolus, and classify the different forms. A large number of practitioners still cling to the idea that all forms of this trouble are purely local in their origin, and that a permanent cure can be effected by local means. There is no question that lack of hygienic conditions, with all their attendant unsani-

tary surroundings, are at times the sole cause for very severe purulent discharges from the alveoli. This condition, which is purely local in origin and requires only local treatment, must be sharply divided from those serious cases where malnutrition and poverty of life-endowing corpuscles play so important a role.

Consequently we make two grand divisions:

I. *Pyorrhea Simplex*—embracing all cases of purely local origin and requiring only local treatment.

II. *Pyorrhea Complex*—embracing that larger field of more serious disorders and graver affections. These cases are often spoken of as "true pyorrhea" by some authors, "phagedenic pericementitis" by others, and the very latest addition to our category is "hematogenic calcic pericementitis." All these names have been coined because of the observation of certain peculiar clinical features about the alveoli, ignoring entirely the primary cause in this nutritional disorder.

The plan I have the honor to suggest for your consideration embraces the addition of a modifying word to all forms of pyorrhea alveolaris of the complex variety, this modifying word to be indicative of the etiology of the case in question after a satisfactory diagnosis has been made.

Under *Pyorrhea Complex* we make the following subdivisions:

A. Those due to nutritional disorders, among which may be especially mentioned: 1, gout; 2, diabetes; 3, chronic rheumatism; 4, Bright's disease; 5, scurvy; 6, chlorosis; 7, anemia; 8, leukemia; 9, pregnancy.

B. Those occurring during attacks of acute disease, such as acute infective diseases; among these may be mentioned: 1, typhoid fever; 2, tuberculosis; 3, malaria; 4, acute rheumatism; 5, pleurisy; 6, pericarditis; 7, syphilis.

C. Those that are due to nervous disorders; among these we might specify: 1, cerebral diseases; 2, spinal diseases; 3, neurasthenia; 4, hysteria.

D. Those conditions resultant from the toxic effect of certain drugs, such as: 1, mercury; 2, lead; 3, iodine.

E. Called *Pyorrhea Sequentia*, a condition of diseased pericemental tissue left behind after the primary cause has been cured.

With such a classification as this borne in mind, when a man

speaks of "gouty pyorrhea," or "mercurial pyorrhea," or "tubercular pyorrhea," he is at once understood.

The pathology and treatment can then be discussed in a rational manner without the injection of entirely irrelevant matters.

TO SAVE THE BABIES.—The French Government, despairing of any hope to increase the birth rate of that country, is now devoting its energies to saving those already born. The new law forbids, under a severe penalty, any one to give infants under one year any form of solid food, unless such be ordered by a written prescription, signed by a legally qualified physician.—*Medical Herald*.

CASTING-SAND.—Ordinary casting-sand forms an excellent imbedding material for holding on bands, etc., whilst soldering. It should be mixed with water to about the consistency of thick cream, and applied round the bands, the plate having been previously adjusted on a soldering block. A pointed flame should now play on the sand, at the point furthest from the wax, until the sand is dry; the wax can now be burnt off, borax applied, the whole heated up and soldered. It is important not to melt the wax before the sand is dry, otherwise the parts will get displaced. The sand must also, obviously, be free from fragments of zinc or lead. The advantage of this method over imbedding in sand or pumice and plaster is that of ease and speed.—*The Dental Record*.

ELECTRIFIED BY FALSE TEETH.—An electrical engineer writes to the *British Medical Journal* drawing attention to the fact that when two different metals are used in the fixing of false teeth, or of their plates, a galvanic current is set up in the mouth which may cause pain, nasty taste, and other discomforts. He says that a friend recently asked him if it was possible he could have any electricity in his mouth, for his tongue was constantly in pain, and neither doctor nor dentist could find anything the matter. He wore artificial teeth, and on examining these it was apparent that two different metals were used in fastening them to the plate. The electrical engineer straightway attached wires to these metals, and put a galvanometer in the circuit; then putting the teeth into position in the mouth, and allowing them to become wetted with the saliva, it was found that a considerable current of electricity was passing through the galvanometer. On covering the metals with an insulating varnish all pain and inconvenience disappeared, and the sufferer became "himself again." Everyone is aware of the old trick of putting a shilling on one side of the tongue and a penny on the other, and bringing them together, when a nasty taste is caused, and in some cases a distinct feeling of shock. Evidently when dentists use dissimilar metals in their "arrangements" they play upon us a trick of the same character.

Letters.

A LETTER OF APPROVAL.

CHICAGO, July 18, 1895.

To the Editor of the Dental Digest,

Dear Doctor:—As I have seen one or two letters criticising this reform movement, and think that perhaps you have received others of a like nature, I, as one who has been benefitted, would like to say a few words to the dentists concerning the advantages of this movement. It has long been a query in my mind why all dentists do not join the Dental Protective Association. My own observations have led me to believe that dentists generally have a very limited knowledge of the commercial world, and I attribute their not joining the grandest and noblest of all dental associations to this fact.

From a careful examination of my ledgers I find that I have done about six thousand dollars worth of crown and bridge-work in the last six years. So from a commercial standpoint I have the best reasons for joining the Association, for I paid only ten dollars to become a member, and have already gotten *fourteen hundred dollars* worth of protection from it. If the dentists do not understand how this can be, let them take a license and a contract of the International Tooth Crown Co., and read them carefully. They will then see that the license costs twenty-five dollars a year, and that the contract calls for twenty per cent. of all fees received for crown and bridge-work. So from a business standpoint alone, to say nothing of the advantages of the profession being banded together, anyone can see why I joined the Association.

It affords me great pleasure to say a word in behalf of the Dental Protective Supply Co., and to recommend their goods to all dentists and especially to the members of the Association. It is a stock company and all members can become stockholders, and if they would inquire into the methods and purposes of it, I am sure the most of them would quickly take stock. A stockholder can always have credit to the amount of his stock, and the discount on goods, which members as well as stockholders can have, makes quite an item in a short time. I have saved twice my

membership fee in the last year, simply by buying my materials from the company and getting the discount. This is another advantage of being a member of the Association.

The DENTAL DIGEST is the official organ of the Protective Association, and as such should be supported by every member, to say nothing of its value, giving as it does a digest of all the other journals, and keeping us informed of the great and noble work the Association has done and is doing for us.

Trusting that some may benefit by my experience and testimony, I remain,

Yours sincerely,

J. E. HINKINS.

NEW YORK LETTER.

NEW YORK, July 15, 1895.

To the Editor of the Dental Digest:

MR. EDITOR:—In a few weeks there will be gathered at Asbury Park representatives of three dental bodies, viz., The American Dental Association, the Southern Dental Association, and last but not least, the New Jersey State Dental Society. Added to this convocation of dental practitioners there will be other bodies, viz., the National Congress of Faculties of the various Dental Colleges of the country, also the National Board of Dental Examiners. This gathering claims a representing of the focalized interests of the profession of dentistry. The movement practically commenced with the organization of the American Dental Association in 1860. This body was the child of the sincere and honest thought of our best men, a large number of whom have since passed off this scene of action. The American has had for the most part a career of honor and usefulness. The Southern was doubtless the child of desire, to say the least, on the part of the practitioners of the southern part of our nation. If there might have been a legitimate degree of pride, that certainly has had good cause for qualification. It has proved an able and an honest body.

It is assumed that the generic desire of both these bodies was to create a higher standard of dental education, and for what?

There can be only one answer, that the public should receive a better service. In addition to this associative movement there has come the legislative body which has turned its energies towards a compulsory education. To-day in all the states there are laws upon the statute books that compel all incoming practitioners to give the evidence of that higher attainment in dental knowledge. In the haste and thoughtlessness that occurs more or less in all new activities, our profession is handicapped with more or less injustice. It is the retroactive phase of legislative action. This is conceded by the best intelligence of our calling. No reasonable advocacy can for a moment be brought forward in its favor. No one has ever attempted it. No claim is entitled to recognition which does not concede that the public has the first and fullest attention of the best ability we can give. This public has the undisputed right to call for this best ability from any quarter of the United States where they think it exists, but this supposed best ability has not the right to respond to this call from the public, except under the legislative restrictions that have been placed in the way. That there should not be a *perfect* uniformity of law in *all* states alike there can be no possible reason shown. Physicians and surgeons are allowed to go from state to state and render their services, and they do it frequently. A dental practitioner, in a dilemma in a great physical crisis, calls a physician of repute from a distant city and state to aid him in his distress. Now, why enact laws that deny the right to a dentist of responding to the call of a patient in dental distress? If dental skill sufficient for New York or Massachusetts citizens is acceptable, why should this same standard not apply for all states? Is it not full time that the persons assuming the charge of these important matters accomplish something more practical? We are only echoing the sentiment that is being expressed from all points of the compass.

It is no news that much antagonism has been exhibited in New York City between two factions contemplating an advance upon educational lines, and the result of it is being emphasized by the Board of Regents. They propose to create a new degree, "B. D. S.," "which may be obtained after three years' study in a registered dental school, and the title "D. D. S." after a post graduate course of one year." If antagonism shall mature more definite and hon-

est attention to real education, then there can be formed a hope that the public will be the gainers in better service. The sincerity of men who have italicized their talk in favor of high grade examinations will be watched with much curiosity, for it is a certainty that if it means a real knowledge, secured by these high grade examinations, then the financial products will be reduced.

The New York Institute of Stomatology has made a good showing by their first report, "The History of the Cusps of the Human Molars." "Politics and Log-Rolling" are to have no part in this new presentation of the claims for advancement in all that is needed for higher recognition by public opinion. If this can be gained in a much larger sense it will be productive of a vast amount of good. Certainly a school based upon that aim will increase the respect of the more educated professions. So much has occurred during the last ten years that has made our organized bodies anything but attractive. Nothing can so advance true educational faculties as a *large* liberality towards *all* investigators, ("according to our views or not.") Men who are enough in earnest to investigate are entitled to our honest attention. There has not been enough of this spirit manifested.

If this new movement prospers, it will of necessity change the entire complexion of our organized bodies. The purpose of the new one are so distinctly opposite that there cannot be a harmonious growth in unison. This movement will also make apparent sooner or later the tendency to a definite drawing of the lines for or against the independence of dentistry, as a separate calling from medicine. Anything which will eliminate the littleness and selfishness from the doings of men will hasten the *ultimate*.

Two dentists who had reached the advanced age of ninety have recently gone; Dr. Kimball, ninety-four years old, who had practiced for many years in New York; and Dr. Augustus Brown, uncle to Dr. Parmly Brown; Dr. Salymon Brown, Dr. P. Brown's father. Both these brother practitioners gave a half century to the practice of dentistry in New York.

The *California Journal* has fallen into the new fad of Stomatology. Surely it is in line with a good Digest (ion.) We think chewing-gum will have to come to the aid of some things that are being swallowed. According to a dentist of repute, it is a

marvelous digester. Chewing gum and riding a bicycle are the two most active occupations in vogue.

In the meantime Massachusetts has an addition of one hundred dental practitioners before the examining board, and, to the surprise of all, one of them has surpassed everything, even the examiners, having a knowledge beyond all; yet strange, he has never seen the inside of a dental college. Is this not an argument for knowledge vs. time?

In the face of all these things, there never was a time when *public* offices were so on the increase as to-day in New York. Men are going *direct* to the public. These deviations do strip the dignity away from the real thing to a degree, yet the *real* will find here and there discriminators for better service. There is much wisdom in the instruction given by Dr. Crouse in his articles; "Who is sufficient for these things?"

Cordially,

M. A. G.

MISSING UPPER LATERAL INCISORS.—A correspondent, Mr. E. Duval, has forwarded to us a series of models showing an absence of upper lateral incisors. The models, five in number, are taken from the mouths of members of the same family, four brothers and one sister. In the case of four both lateral incisors are absent, while in the fifth one is present. The teeth present are well developed and the individuals in question are all tall, well proportioned and in the enjoyment of good health.—*Jour. Brit. Dent. Ass'n.*

DENTISTS' RELATIONS NOT CONFIDENTIAL.—During the trial of the case of *The People vs. S. J. de France* for forgery, the defense attempted to raise a question of identity, for which purpose they showed that the teeth of the accused were entirely different from those of the person committing the forgery as alleged. In rebuttal, a dentist of Detroit was cited who testified that subsequent to the date of the forgery he had inserted three false teeth in place of two incisors for De France. The case was carried up on appeal to the Supreme Court of Michigan, on the ground that the trial court had erred in admitting the dentist's testimony, claiming that his knowledge was privileged as between physicians or surgeons and patients. The Supreme Court affirmed the verdict of conviction and held that the terms "dentist" and "physician or surgeon," as the latter are used in the statute covering this point, are not interchangeable and that a dentist's relations with his patient can not be considered confidential as is the case with a physician or surgeon.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

THE DUTY OF THE DENTAL COLLEGES.

A grave responsibility rests upon the dental colleges in regard to the future improvement of the profession. This has reference chiefly to those entering our ranks from now on, as no great change can be expected in the character of the present membership, owing to the fact that too many are beyond the reach of any help, neither associating with their fellow practitioners nor with the organized societies, nor taking the advantages offered by the journals. Therefore, the chief improvement in the character of the profession must come through the colleges, for the following reasons: First, all those now undertaking the practice of dentistry are required by law in most states to take a college course; second, these students are not required to have had a private tutorship before entering, the college course being now so arranged that it removes this requirement of former years, and thus places all the responsibility of deciding the fitness and character of the incoming practitioner upon the colleges. Formerly, the prospective student consulted a dentist and was made familiar with some of the duties and responsibilities of the practice of dentistry, and so when a student came with the recommendation of a reputable practitioner, it was somewhat of a guarantee that, in a measure at least, he had some of the natural qualifications. While the time spent in the office perhaps did not give him as much knowledge of dentistry as the same amount of time in a college would, it had the advantage of giving him an opportunity, before he paid out his money, of learning whether the practice of dentistry would be congenial and successful or not. It also had the advantage of giving him the preceptor's advice, who, if he

was honest, would counsel him not to study dentistry, provided it was apparent that he was not suited to it. But now any young man, without much education and with no natural qualifications, can enter a dental college. He pays his tuition, spends a valuable part of his life, and perhaps at the end of three years awakes to the fact that he has none of the natural and necessary qualifications, and yet he takes his place in the profession, not much of an addition to it. While we do not in any way mean to underrate the value of an education, we feel that natural qualifications play quite as important a part in the making of a successful dentist. If this picture is drawn at all accurately, is it not necessary that at the next meeting the College Faculty Association should seriously consider and endeavor to remedy this great evil? For they alone have the power to do it.

THE PURPOSE OF THE AMERICAN DENTAL ASSOCIATION.

This being a body composed of delegates from local societies throughout the United States, the object of the meeting would clearly appear to be of an educational nature. The representatives of these local societies should give, in condensed form, some of their important work of the year. If this were brought together, and arranged by the proper sections, the transactions of the American Dental Association would be for dentists the most important document issued from any source. But unfortunately up to this time the annual gatherings have been little more than mass-meetings; the delegates coming together with their credentials, and with little or no idea of reporting the work done by their societies, or of giving anything of importance to the body. Therefore, much of the time is wasted, for, having no other business, the delegates and members spend their time in politics and wire-pulling. If an active child is unoccupied he will surely get into mischief, and it is the same with an individual of a larger growth. The way to divorce the Association from politics, which are complained of by many, is to substitute for this form of amusement some active educational work. We hope and believe from present indications that this will be done at the coming meeting.

A PLEA FOR BETTER BUSINESS MANAGEMENT.

One great fault of the dental profession, and one which should be remedied, is their glaring lack of business qualifications and habits. It is a notorious fact that the dental profession generally are without ready money, and this condition is so prevalent and constant that they become discouraged and are unfitted as business men. Hence, when even small opportunities present themselves, whereby they might improve their financial condition, their lack of funds prevents them from bettering themselves. We believe that dentists as a class earn money enough, if they would curtail their expenses and make them proportionate to their earnings, to change this impecunious state of affairs. In our article this month we have made a plea and pointed out methods of management which, if adopted, would entirely change the standing of the dental profession. No other class of men accumulate so much useless material as do dentists, who buy many things they do not need, which is one cause for their financial embarrassment. This plea on finances is made here, because we believe it is one of the chief reasons why the dental profession has no better standing in the eyes of the people, and because it is a great hindrance to their professional advancement.

THE NATIONAL BOARD OF DENTAL EXAMINERS.

The benefits of this organization have not as yet been fully realized. The members are clothed with great power, and can, if they get well organized, do more to improve the character and standing of the dental profession than all other forces combined. It has seemed to us that this body has not as yet exerted or made use of its full powers. We have stated in another editorial that the dental colleges were the only factors that could have anything to say as to who shall enter the profession, or what the character of applicants shall be; but back of the colleges is the National Board of Dental Examiners, who have the power, and can, if they make use of it, decide what the colleges shall do, or what the standard of a reputable college shall be. Made up as it is of

representatives from the examining boards of each state, this organization should do an immense amount of good. We are aware that their influence for good has already been felt, and that they have done much towards uniformity of equipments. Nevertheless, if each state board will see to it that they have a representative present at the meetings of the National body, the power for good can be made almost unlimited.

Notices.

AMERICAN DENTAL ASSOCIATION.

The thirty-fifth annual session of the American Dental Association will be held at Asbury Park, N. J., commencing Tuesday, Aug. 6, 1895.

GEO. H. CUSHING, Rec. Sec'y.

AMERICAN DENTAL ASSOCIATION.

Convenes at Asbury Park, N. J., Aug. 6, 1895. Dentists who are members of state or local associations and contemplate representing their profession at this meeting, are requested to obtain their credentials to same from their society.

The New Jersey State Dental Society will meet at Asbury Park, August 1.

VIRGINIA STATE DENTAL ASSOCIATION.

The twenty-sixth annual meeting of the Virginia State Dental Association will be held at White Sulphur Springs, West Virginia, Tuesday, Aug. 13, 1895, at 10 o'clock A. M.

The executive committee intend that this shall be the best meeting in the history of the Association. The lessees of the "White," the greatest health resort in the country, have agreed to give us and our guests, families included, a rate of \$2.50 per day from Aug. 10-19, inclusive. Those who have attended our meetings do not need to be assured that a hearty welcome will be extended to them; those who have not are invited to come and try us.

J. HALL MOORE, Richmond, Cor. Sec'y.

AMERICAN DENTAL ASSOCIATION.

The 35th annual meeting of the American Dental Association will be held at Asbury Park, N. J., commencing Tuesday, August 6th, 1895, and continuing for four days.

Railroad rates. A rate of *a fare and one-third for the round trip* upon the "certificate plan" has been secured. In order to get this reduction, full fare

must be paid in going to the meeting, a *receipt* being obtained therefor from the ticket agent at the *starting point*. If traveling over more than one line secure a certificate over each line, or have the ticket agent at the starting point name in the receipt the different roads over which the ticket is good. This receipt (certificate) must be countersigned by the Secretary of the Association, and entitles the holder to return for one third fare. Arrangements have been made to have the joint agent of the railroads present at Asbury Park on Wednesday, August 7, and it is desirable that all who intend to attend the meeting shall be in attendance, so that their railroad certificates can be passed upon at that time. No rates have been granted over the lines comprised in the Western Passenger Association. Members living west of Chicago should secure the best rates they can to this point where they enter the territory in which the reduced rate prevails.

J. N. CROUSE.

Chairman of the Executive Committee,
2231 Prairie Ave., Chicago.

HARVARD DENTAL ALUMNI ASSOCIATION.

The twenty-fourth annual banquet of the Harvard Dental Alumni Association was held at the "Thorndike," Boston, on June 24, 1895, with sixty-three members and guests present. Reports of the secretary, treasurer and committee on Harvard Dental School were submitted. The invited guests were C. F. Adams, LL. D.; Hon. Sherman Hoar, U. S. Dist. Attorney; M. C. Ayres, Editor *Boston Advertiser*; Rev. A. E. Winship, Editor *Journal of Education*; N. J. Loring, LL. B.; and W. M. Conant, M. D., Instructor Harvard Medical School. Drs. C. H. Abbot and Amos J. Hadley, Corresponding Secretaries from Berlin, Germany, were present.

The guests of the evening were happily introduced by Pres. D. M. Clapp, and each guest responded with an excellent speech in a creditable manner. Hon. Sherman Hoar claimed the right for all the professional schools of Harvard University to vote for overseers, saying "Now, Harvard College controls Harvard University, but Harvard University ought to control Harvard University." Dean Chandler was unable to be present, owing to a long and serious illness, but Prof. Fillebrown outlined the work and progress of the school during the past year, stating that the entrance examinations in 1897 would make either French or Latin obligatory, in addition to the present requirements. Prof. Charles A. Brackett, of Newport, R. I., being unable to be present, sent the following letter in the form of a resolution which was unanimously adopted: "That the association expressed appreciation of the services of Prof. Thomas H. Chandler, Dean of the Dental School, sorrow for his continued illness, and earnest good wishes for his speedy restoration to health."

The following named officers were elected for the ensuing year: President, Dr. James Shepherd; vice-president, Dr. Frank Perrin; secretary, Dr. Waldo E. Boardman; treasurer, Dr. Washburn E. Page; executive committee, Waldo E. Boardman, chairman, William P. Cooke, Patrick W. Moriarty.

WALDO E. BOARDMAN, D. M. D., '86. Secretary.

News Summary.

BACTERIA AND COLD.—According to Pictet, a temperature as low as -415.5 deg. F. fails to destroy any form of bacterium.

PATHOLOGICAL SARCASM.—The princes and potentates of Europe are aptly described as men with all kinds of orders on their breasts and all sorts of disorders in their blood.

HANDKERCHIEFS.—It is supposed that the use of handkerchiefs first became general during the Empire in France. The Empress Josephine had bad teeth, and to hide the defect when talking or laughing always held her handkerchief before her mouth.

COLORING ALUMINIUM.—A method of coloring aluminium has lately been patented by Ida Ouaglio of Berlin. The objects made from aluminium are first covered with zinc and then colored black by a solution of either platinum, copper, nickel or antimony, a varnish being employed to protect the designs.—*Jour. Brit. Dent. Ass'n.*

PERFORATION OF THE PALATE IN A SUCKLING INFANT.—Dr. von Geuser exhibited at a meeting of the Imperio-Royal Medical Society of Vienna, on May 24, an infant of three months suffering from hereditary syphilis with perforation of the palate, although at birth there was no sign of syphilis. Such a condition is extremely rare, and according to Dr. Geuser only two cases are on record in the whole of medical literature.—*Jour. Brit. Dent. Ass'n.*

EXTRACTION OF TEETH.—In his Thesis for the doctorate, Dr. Eugene Guerard discusses the possibility of septic affections in connection with the extraction of teeth. He records a dozen cases in which ordinary extractions have been followed either by serious necrosis of the jaws or by diffuse abscess, phlebitis, and meningo-encephalitis. In one fatal case erysipelas commenced at the wounded gum, and was due to the operator's negligence. There is only one way of avoiding such troubles and that is by regarding tooth-extraction not as a simple operation without danger, but as one which leaves a wound difficult to treat and often accompanied by serious lesions. It should be practiced therefore with all antiseptic precautions possible.—*Brit. Jour. Dent. Sc.*

HUNGER OF THE WORLD.—Mr. E. G. Ravenstein, the eminent English geographer and statistician, has made some calculations to find when the earth will be unable to find nourishment for its population and they will be forced to cannibalism or starvation. According to him when the number exceeds 5,994,000,000, or in round numbers, 6,000,000,000, this emergency will arise, and Mr. Ravenstein believes the population of the globe will reach this figure in 284 years more. He points out that the average decimal increase is 8 per cent, divided as follows: Europe, 8.7 per cent; Asia, 6 per cent; Africa, 10 per cent; Australia and Oceanica, 30 per cent; North America, 22 per cent; South America, 15 per cent.—*Jour. Amer. Med. Ass'n.*

Obituary.

Augustus Woodruff Brown, D. D. S.

Died July 5th at his summer residence, in Manchester, Vt., aged ninety. He was born in Litchfield, Conn., and was the oldest dentist in America at the time of his death. He practiced in New York City for half a century, and retired with a fortune fifteen years ago.

He was at first associated with Dr. Solyman Brown, his oldest brother, whose name is one of the best known in early dental literature. In their office at 13 Park Place, New York City, the first Dental Society in the world was organized and the first Dental Journal planned. These were the American Society of Dental Surgeons, of which Dr. Eleazer Parmly was first president, and the American Journal of Dental Science, of which Dr. Solyman Brown was first editor.

Dr. Augustus W. Brown at one time had the most aristocratic and lucrative practice in New York, and was widely known in social as well as professional circles.

One of the earliest Honorary Degrees of the Baltimore College of Dental Surgery was conferred upon him.

He married Miss Emma Mandeville, who survives him, together with two daughters. He had nine children, but none of his sons grew to manhood.

The funeral services were held at Manchester, and the interment was in the family vault in old Marble Cemetery, New York City.

The Dental Digest.

Vol. I.

CHICAGO, AUGUST, 1895.

No. 8.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

BY J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 389, No. 7, Vol. 1.]

In our last article we said that to be a good dentist required much skill, good judgment, care, enthusiasm, and powers of endurance, all of which are sure to yield good compensation in any line of business. We showed some of the causes why many fail in the practice of dentistry, and especially emphasized the importance of keeping out of debt.

We have urged that to be a good dentist requires varied and unusual ability, and there is no part of dentistry which calls this ability into play so much as diagnosis and prognosis. The diagnosis covers a large field. From childhood to old age there are varied and numerous troubles, calling for the most extensive knowledge and for very careful thought. Happy is the man who can always decide promptly and correctly what each trouble is, and the proper remedy for the same. The child is brought to us too young to answer the questions which, if properly answered, would greatly assist in locating the toothache. In many of these cases the only information that the nurse or parent can give is, that "the child cried all night with pain." The teeth are all decayed; from appearance any one of them might be aching, and the nervous reflex pain in a child is unusually great. So the seat of trouble may be in the opposite jaw from the one indicated. In such cases the surest way is to treat any and all teeth which are suspected of having either a dead or exposed pulp. In this way

you may find the aching member at the first treatment, at any rate, you are sure to find it sooner or later.

The treatment and filling of deciduous teeth is the most unsatisfactory, except that the toothache is stopped, of any service the dentist has to perform. Alveolar abscesses are frequent, both in filled and unfilled teeth. However, after the first period of pain, when the abscess and fistulous opening are once formed, they are not apt to give much trouble. Pus will be discharged through the fistula from time to time, but the child will suffer but little from this. Therefore, it is better to keep these teeth in the mouth, if for no other purpose than to make the permanent teeth occupy their natural position in the jaw. For instance, if the second temporary molar is removed before the sixth year molar is erupted, the latter is almost sure to occupy the position belonging to the second bicuspid, so that when this tooth appears there is no space in the dental arch for it. Again, if there appears to be too little space for the erupting permanent incisors, and the temporary cuspid be extracted to make room, as is frequently done, a very troublesome case of irregularity is likely to be produced, as the permanent cuspid is robbed of its proper space. This is probably the most frequent form of irregularity with which we have to contend, as the incisors and first bicuspid are not forced to their proper places, and the growth of the alveolus and arch is lessened. The result is that the teeth must either be forced back to position by mechanical means, or else some one of them must be extracted to make room for the cuspid which, as regards expression and form of the mouth, is probably the most important tooth in the arch.

A good and safe rule to adopt is to fill and retain all the temporary teeth until the permanent ones are erupted. In this way many irregularities, which would otherwise occur, are avoided; another great service is rendered, for, if the deciduous teeth are extracted or sore, the child acquires a habit of swallowing his food in a half-masticated condition, thus inviting indigestion. Furthermore, this habit, when once acquired, is very apt to continue to adult life, and we believe it is one of the main reasons why so many people have "inherited(?) dyspepsia."

The filling of the temporary teeth is probably best done with cement, notably the oxyphosphate. We believe that this material is more enduring in a child's mouth than in an adult's. One

plausible theory is that the secretions of a child's mouth are always acid, and that oxyphosphate is not affected by acids. If the child is placed in our hands before dental caries has advanced too far, the decay can be checked. The extensive excavating necessary in permanent teeth is not essential here. For, since these teeth, if the pulps are kept alive, are almost entirely removed by absorption, the removal of all softened dentine is rather detrimental than otherwise. Therefore, we would advise frequent renewal of the fillings, rather than to endanger the life of the pulp by a too thorough excavation. And because of the above mentioned absorption, we wish to emphasize the importance of keeping the pulp alive, so that nature's methods may not be interfered with.

If, in the process of filling the child's teeth, advantage has been taken of the opportunities there offered, great good has been accomplished in many directions. In the first place, you have gained the confidence of the child by being truthful and careful to give little pain, and have thus taught him that a dentist's chair is not a place of torture. It is not necessary to insert the dam for these fillings, nor to use all the painful methods necessary in an adult's teeth. To treat a child successfully, we have found it very helpful to call in their assistance; e. g.—to hold bibulous paper in the mouth, help control the tongue, etc., thus interesting them in various ways in the success of the operation. You can soon discover whether or not the child has been treated truthfully by those in charge. If a lie is told to induce him to enter the chair, or if he appears distrustful of everyone, dismiss the attendant, take entire charge yourself, and make it your first business to gain his confidence. We make this a very positive rule. The result is, that when the dental operations are completed, if we have performed our duty wisely and carefully, the child has a much less dread of all dental operations than when he first came. This dread has usually been created by the false and exaggerated stories told by older children to frighten him. If the education has been wisely administered it is not limited to the child, but the mother has also benefitted thereby.

From time to time during the operations both the child and mother should be instructed as to the care of the teeth. The patient should be thoroughly drilled and then turned over to the mother, who should continue the good work. It is very easy,

by means of premiums, lectures, example, in fact, by any means which the ingenuity of the parent may devise, to accustom the child to brush his teeth often and regularly, and when the habit is acquired, it will continue through life.

[TO BE CONTINUED.]

HEARING RESTORED AFTER TWENTY-FIVE YEARS.

BY G. L. BENNETT, D. D. S., CHICAGO.

An incident of practice comes to my mind, which I think might be of general interest. A lady fifty years old, who had been deaf for twenty-five years, called to have some teeth extracted. I took out ten roots and both of the upper wisdom teeth, which latter were apparently sound, but had a deposit of osseous matter forming a nodule on each root. *As soon as* the teeth were removed the patient's hearing returned, and she said at the time she felt something give way and a pressure removed that she had experienced for many years. This happened two years ago and her hearing is still good. She is now wearing a full denture and is a very grateful patient.

All of which shows that the best practice is not to retain apparently sound teeth for crown and bridge-work, without knowing what is on their roots.

DANGERS OF CHLOROFORM NARCOSIS IN DIABETIC PATIENTS.—Baixer calls attention to the dangers of chloroform in diabetic patients, basing his remarks on three cases of his own and other cases in the literature. On recovering from the narcosis the patients may feel all right, but in twenty-four to forty-eight hours they experience a sense of inquietude, then of hebetude, which passes into coma, in which state they very often succumb. Nothing characteristic is discovered at the necropsy. The author has been able to find acetone and acetic acid in the intestines, even in non-diabetical patients. As chloroform in diabetic patients—perhaps by some yet unknown change in metabolism—may give rise to dangerous secondary symptoms ending in coma and death, the author thinks the existence of diabetes is an absolute contra-indication to chloroform narcosis.—*Centralb. f. Chirurg.*

THE LOWER THIRD OF THE FACE—ITS REVELATION OF CHARACTER.

BY B. J. CIGRAND, B. S., D. D. S., CHICAGO.

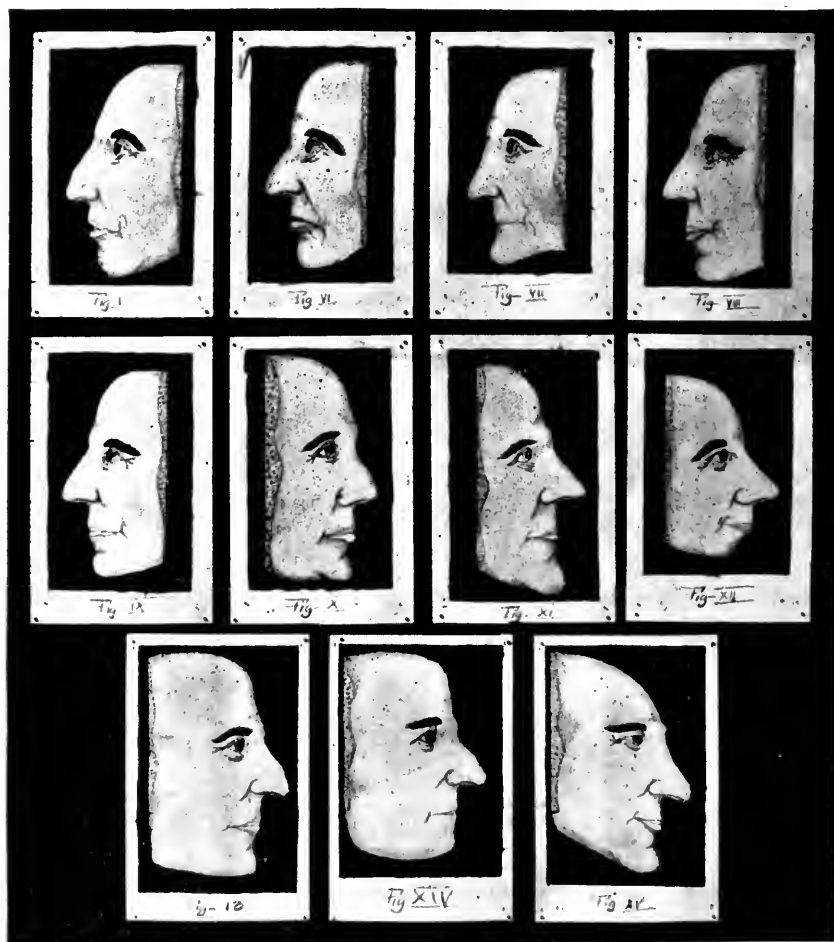
[Continued from page 397, No. 7, Vol. 1.]

An upper lip which is short and fails to cover the teeth and gums, as in Fig. 5, indicates approvativeness. This lip is seen on people of a vain disposition; they are mortified by censure and greatly elated by words of commendation; they are too fond of praise, and delight to be flattered; to blame them wounds their feelings beyond reason. People of this index are so sensitive to criticism that they shun public office or any great public trust. Imagine a Caesar or Napoleon with a short upper lip and half-open mouth; could you dream of Jefferson, Franklin or Lincoln with this gaping mouth? These lips no man had who served in the armies of Napoleon, for he made it a rule to promote none who could not close his mouth. If you have a secret which you wish to give, see to it that the open-mouthed friend does not receive it, since with him it could not long remain.

The lips of contempt or scorn are familiar to us all, but to be certain that you may recognize the pessimist of society I designed Fig. 6. Contempt protrudes the lower lip and draws down the corners of the mouth. People of this lip are naturally inclined to fault-finding; they long to provoke the ill-will of those about them; they delight to abridge the pleasure of their friends, and have a cold, repulsive and antagonistic bearing. These are the lips which make sour the lives of the immediate community. If their possessors attend a family picnic they are objecting to every agreeable move that is contemplated; they take part in those games and festivities only which they propose, and are often heard saying: "If you don't play my game I'll have nothing more to do with this crowd." In short they are the "rule or ruin" kind, and when they are eliminated from society, they are to be seen in some penitentiary. The most telling example that can be found of this lip is to be seen on Richard Pendergrast, the assassin.

The thin and illy-defined lip, as seen in Fig. 7, denotes a cold, unloving nature. Industry, love of order, precision, house-wifery are there in unmistakable language. This class of people are unsocial and prefer to live alone; it bores them to have companion-

ship with any one; they are given to seclusion; they form but few attachments, and manifest but a sparing degree of affection for any person. They are the class of people who have no time for recreation and are incessantly employed. Needless to say they



are selfish and dream of hoards of money. We can expect such a lip in miserly persons. Andrew Johnson's lip has marked traces of this nature.

When the lips are full and well-rounded, as in Fig. 8, it exhib-

its the fact that affectionate and most loving thoughts engage the mind. Mothers who love their children to such a degree that it approaches worship, invariably have this lip. This lip is most common to the female sex. Warm-hearted sympathy is its potent language. Though these lips signify that their possessor worships Cupid, they are nevertheless emblems of purity, and are seldom seen on vicious and crouching countenances. The model mouth of the Greek Venus is of this beautiful shape. Mrs. J. A. Garfield displays these lips, and her tender love for those about her corroborates the silent evidence of her mouth.

The mirthful lip is well proportioned; the middle line is equally serpentine on both sides of the median line, as in Fig. 9. This lip seems to be as the Germans say, "limber and quick," and is usually accompanied by a glib tongue. Voltaire's lip is a familiar illustration.

THE CHIN AND JAW.

You have all recognized the great variety which exists in the forms and quality of the chin. It may be prominent or retreating; long or short; pointed or round; square or dimpled. Few attach any significance to the shape of the chin, supposing that its shape is merely accidental; but those of you who have given the matter serious thought will assert that the chin demonstrates characteristic peculiarities. One of the marked differences between man and beast is the fact that men have a chin while the animals present no such development. We have all noticed that a chinless person is weak-minded and bordering on idiocy or imbecility; all this is certainly strange, yet nature's symbols bow down to nature's command and speak freely.

The prominent chin, as in Fig. 10, always depicts a positive character, and can be seen on persons noted for resolution, perseverance and executiveness. These people are prone to control and command others, and to make external circumstances bend to human powers. Courage and fortitude are here clearly stamped. They are persons who enter a battle to "fight to a finish," and the fight is never finished until they are the victors. This chin is noticeable on Benedict Arnold, who was well known as a fearless warrior.

The sharp and prominent chin, as in Fig. 11, is generally indicative of an inquisitive and crafty nature. This class of people

are apt to take an undue interest in other person's affairs; you will generally discover them in gossip circles and invariably find them to be news-mongers. They are somewhat quick-tempered and manifest a supersensitive nature. They are painstaking investigators, delighting to pry into social matters. They are natural born detectives and gratify themselves most decidedly in shadowing the suspicious people of the vicinity. The eminent Frenchman, Cardinal Richelieu, approaches this character.

The blunt or receding chin, as in Fig. 12, betokens that the owner is inexecutive; lack of force is his failing. These people have no mind of their own and are completely under the subjection of some trusted friend. When this chin is accompanied by a short upper lip, as in Fig. 3, and the forehead is receding, it is a safe criterion of "*non compos mentis*." George III of England may safely be classed as typifying this character, his retreating chin and forehead and the partially open mouth are familiar to all students of history.

The chin and lower jaw are inseparably associated in the physiognomical study of the lower third of the human face. They contribute very liberally toward giving an expression to the upper two-thirds of the countenance, and are the seat of many characteristic symbols.

There are three varieties of shapes common to the inferior maxilla which are deserving of our attention; these are the angular jaw, the round or bull-dog jaw and the infantile jaw.

The angular jaw, as illustrated in Fig. 13, is so called on account of the acute angle which is formed by the union of the ramus and the body of the maxilla; and it is surprising how few matured individuals present this well-proportioned jaw. This jaw is most common in man, and it is an earnest indication of firmness and determination. Men with this jaw often pursue their ends with a reckless yet stern disregard for their physical welfare; nothing can turn them aside from their purpose, and they attain success by means of their great energy, perseverance and endurance, rather than by forethought or deep scheming. They are men of the field, rather than of the chamber. They are observers rather than thinkers, and know no word like fail. Their will power is most active and they are the acknowledged leaders in the sphere of active life. As speakers they use strong ex-

pressions, emphasize many words, and talk to the point. They have no time for sentiment, scarcely appreciate fine art, and laugh at the jingle of poetry. To them this is "a matter of fact world," with no time for rest; their motto seems to be "to do or die." The great Roman, Julius Cæsar, had such a jaw, and his life of conquests bears witness that he was true to his nature.

The round, or bull-dog jaw, as is shown in Fig. 14, is usually seen on persons of a pugilistic tendency, though it is rather common to the stern business man. It portrays a tenacious, selfish, and decisive character. These people are of an antagonistic disposition, finding great pleasure in wielding their powerful fists against some opposing human force. The prize-fighter's countenance is too clearly seen by your mind's eye to need further description. You will admit that the bull-dog and the pugilist bear a most striking resemblance.

The infantile jaw, as Dr. Holmes named it, is seen in Fig. 15. He designated it thus from its analogy to the undeveloped jaw of the infant, having an obtuse angle. People with this jaw exhibit sly and fox-like propensities. They have great will power, but very little courage; they prefer to command circumstances rather than men. They are reserved in the expression of their feelings; they keep their affairs, plans or designs to themselves; are discreet and delight in concealment. They have mysterious, tricky, deceptive and shrewd methods in performing any task. If engaged as generals, they are inclined to practice strategy; they much prefer indirect approaches to a straightforward or open-field encounter. They are usually double-faced in their dealings, being very sweet to your face and quite sour to your back.

In concluding this paper, permit me to remind you of the importance of a fair understanding of the various physiognomical character signs which reveal themselves on the human face; and permit me to impress you with the fact that the investigating and searching elements of the coming generations will devote a liberal portion of their time in the attempt to solve the inviting mysteries of psychology, physiognomy, and other co-related subjects. The mental as well as the physical characteristics of man will engage the undivided attention of rising humanity, and the wonderful discoveries which are yet to come to light, relative to

mental phenomena, will reveal those made in our time on magnetism and electricity. Matters foreign to the peace and general welfare of our race can claim but little time of the coming scientists, for man has awakened to the truth of Pope's remark: "The proper study of mankind is man." And dentists and physicians cannot remain dormant or regardless of this great truth if they hope to be the benefactors of a suffering humanity.

METHOD OF REPAIRING RUBBER PLATES.

BY A. B. CRAWFORD, D. D. S., GRAND RAPIDS, WIS.

Warm some wax and lay on a flat surface, then put parts together, teeth down, and press lightly into the wax. It is then easy to see if the parts come together correctly. Run full of plaster and, if a lower plate, put a stiff wire, bent to fit, into the plaster to stiffen it. When plaster is hard, remove from the wax bed and scrape away the old rubber from a quarter of an inch back of the break down to an edge at the break, then varnish with rubber varnish and let it stand at least two hours to dry. Then press on new rubber with a warm instrument, invest, vulcanize, and finish. By this method undercuts will cause no trouble.

RED LINE ON GUMS.—A red line on the gums is, according to Dr. Andreesen, of Yalta, frequently present in the subjects of pulmonary tubercle. In 800 patients examined, this sign was found in 92, and of these 69 were phthisical patients having bacilli in their expectoration, and other pathognomonic signs. In the 23 others in whom the line was present there was a suspicion of tubercle. In 14 cases of confirmed pulmonary tuberculosis the red line was absent, as was also the case in 33 patients in whom phthisis was suspected. The line may be readily recognized by its intensely red color, and cannot possibly be mistaken for the livid mark visible in persons suffering from chronic affections of the digestive tract. In the majority of cases in which the line existed, the affection was of a somewhat grave and acute character, while those cases in which the line was absent, the evolution of the morbid symptom was slow and comparatively benign. The line gets less when there is a general improvement in the health of a phthisical patient, and again deepens if the pulmonary condition becomes worse. A similar mark is at times observed on the gums of pregnant women; so that under these circumstances the line is of less diagnostic value.—*Dental Record*.

Digests.

Items of Interest for July, 1895.

"How to Vulcanize Rubber plates between Metallic Surfaces," by Dr. A. N. Dick, Woodland, Cal. After the teeth have been articulated and the model buried in the lower half of the flask, trim away all surplus wax from the palatal side of the teeth, leaving the model exposed. Now take a sheet of good modeling compound, rolled to the thickness desired for the plate, dip it in hot water and adjust it to the model and teeth, using a spoon to pour on the hot water till it fits perfectly, so as to develop the lingual rugae. Then trim the edges with a sharp instrument and finish to desired shape of plate. Moisten the surface and burnish on a piece of extra tough tin foil No. 4, first pressing it to position with a bunch of cotton. Burnish very carefully with a smooth round instrument. Prepare the sheet of modeling compound by pressing it between two pieces of glass, thus securing any desired thickness. In preparing the plaster for the mould, pour the required amount of water in the mixing cup and sprinkle the plaster on the water without stirring, till enough of the plaster has settled down in the water to give the desired consistency; by so doing, the air that is in the dry plaster will be floated out, so to speak, and not be carried in the mixture as it would be if the plaster was stirred from the beginning, thus securing a mould free from air bubbles. Then pour and let it set. After opening the flask, pour a little hot water on the base-plate and lift it carefully from the underlying tin foil. If these details are strictly followed out by a skillful hand, the result will be a beautiful lingual surface that will require only the felt and brush wheels to finish it. The file and sandpaper will be needed for the margins. To secure a metallic surface for the palatal side of the plate is equally simple and needs no explanation. However, the same care should be used in mixing the plaster for the model as for the mould, otherwise there would air-holes into which the rubber would be forced through the tin foil and thus make a rough surface. The foil for the palatal side should be No. 4, and the model should be wet when the foil is applied to it. The foil should be applied to the

model with the thumb and fingers without burnishing, as the burnisher would injure the model.

"Impressions for Full Cases," by Dr. Wm. H. Steele, Forest City, Ia. The writer does not consider plaster the ideal impression material for full cases, for while it gives a perfect impression, that is not what is desired. If so, why do we scrape the cast before making the die or vulcanizing the rubber plate? We scrape because we want good adhesion, and this cannot be had without giving the plate a heavier bearing on the softer part of the mouth, and we usually accomplish this by scraping the die on the yielding parts. This scraping is guess-work; the longer we have guessed and scraped the better will be our success. While modeling compound might give a good impression of the arch, it is not reliable, as the muscles crowd the material away from the ridge in forcing the impression in place. My method is to first take an impression of plaster; remove and dry off thoroughly; scrape sufficiently to remove the roughness; then take a sheet of modeling compound base-plate; warm and shape it nicely in the warmed impression; invert the cup over a lamp till the compound is quite soft; immediately insert in the mouth and press firmly to place; with a glass of cold water and syringe cool the compound; when set, remove from the mouth and pour the cast; by this method we get a cast that is smooth, easily removed from the impression, and which gives a good fitting plate without any need of scraping.

"Oxiphosphate Covered with Gold or Amalgam," by Dr. W.E. Driscoll, Manatee, Fla. For gold, I fill the cavity with the cement very carefully. When it is hard I drill the necessary retaining points in the cement, and make quite a thin covering of gold. With a good cement, properly managed, mere shells of enamel can be preserved so well in this way that dentists examining them will not suspect their condition, so nearly do they resemble teeth with the normal amount of dentine. When a covering of alloy is used I apply it to the soft cement. I fill the cavity nearly full of cement and press in a block of alloy that has been condensed with pliers. This first piece is securely embedded in the cement, and with a smooth, round point I make a careful joining of the alloy

to the edge of the cavity. I prefer the soft cement should be present at the edge, but I burnish the alloy solid to the edge, so as to press out all surplus cement. In this way I get a better joint or edge to the filling than if the cement had not touched that part. Then where the enamel is thin I thus prevent the alloy showing through, and I thus give the case the appearance of having never been so frail. In this way I fill a great many teeth where the pulps are badly exposed. Also, I never have used anything to intervene between oxiphosphate and naked pulps; I merely touch them with campho-phenique, wipe dry, and apply very soft cement that will take shape without pressure on the pulp to produce pain.

The Ohio Dental Journal for July, 1895.

"Hints," by Dr. Wm. H. Steele, Forest City, Ia. *Vaporizing Medicine in Root Canals*.—Any of the volatile remedies can be easily and successfully introduced in the root canal in the form of a medicinal vapor in the following manner: The rubber dam being adjusted, the canal cleaned and dried; saturate a pellet of absorbent cotton with the remedy you wish to use and place it *loosely* in the canal; now with an ordinary hot-air syringe force hot air through the cotton; which will vaporize the medicine and carry it to all points of the canal just as successfully as any of the high-priced outfits sold for the purpose.

Repairing Rubber Articles.—When rubber articles in use about the office get torn or punctured they are usually thrown away as worthless, while they can be made as good as new with little expense. If a rubber bulb or section of tubing gets cracked or torn, take a coarse file and remove all dirt around the break, at the same time roughing the surface, put on a little "Major's Rubber Cement," and immediately apply a patch, cut from a piece of heavy rubber dam, and secure it in place until the cement sets. To repair the gas-bag, rough up around the breaks with a file, cement on a patch of thin rubber dam, and when this has set, cement over it a piece of thin, strong cloth.

"Non-Cohesive Gold Foil as a Filling Material," by C. H. Gerish, Exeter, N. H.; read at the Vermont State Dental Society, March, 1895. I will ask your attention to some advantages that non-cohesive gold possesses over the sticky form as a permanent

filling. It is a better stopping because a softer one. Why does a farmer plug the taphole of his cider barrel with a spike made of pine instead of hard wood? Simply because he loses no cider, there being no leakage. The plug must be as soft or softer than the material into which it is driven. Thus, when you put a non-cohesive filling into a tooth, you have similar conditions existing. You will probably agree with me that it is not the most solid filling that preserves, but rather the one that is best adapted to the inequalities of the cavity, especially the marginal walls, the one which excludes air and moisture, and is yet hard enough on its surface to withstand the action of mastication. In all these desirable qualities soft foil stands foremost. Beyond a certain point you cannot make it hard. Though you will secure a very dense filling, it is like putty; though you work it ever so long, when you have finished your labors it is still putty. You have not changed the character of the material; you cannot pound the life out of it. Again, the mechanical arrangements of the cylinders is more conducive to a perfect stopping.

My method of preparing and working the foil is as follows: I use both Nos. 3 and 4, nothing heavier. Take a sheet and fold two edges together, once, twice, three times, making a ribbon of eight thicknesses of foil, about one-half inch wide; then twist or roll this ribbon, being careful to keep the surface smooth of the coil. Now, with the scissors, cut the same into pieces just long enough to suit the cavity; so that one end of the piece shall touch the floor, the other projecting beyond the orifice. Begin your filling by inserting one of these pieces into a angle or corner of the cavity, so placing it that the cut end of the gold shall beat the bottom of the cavity, and condense into or towards the distal wall, another piece is placed alongside, and so on until you reach the opposing angle or corner. This reduces the size of the cavity. Continue in this manner until the cavity is full. Up to this time you have been using the sides rather than the point of your plugger, but now the point or end of the instrument comes into play by condensing your surplus gold, keeping the same well over the cavity. This is important. Now, with a wedge-shaped instrument you begin to hunt for the weak places, sending it well to the bottom of the cavity, using lateral wedging pressure. This act sends the gold towards the walls of the tooth. Fill up this pit and look for another soft spot. After this take your burnisher

and condense, as only a burnisher can; and here the saving qualities of soft foil appear, for under the burnisher the surplus gold in a great measure disappears. What becomes of it? Every piece of foil composing the filling presents its edge or end to the action of the burnisher, and that instrument has forced, swayed, moulded or moved the plug in the same manner, but to a less degree, than the warm burnisher does your gutta-percha filling, bulging the walls outward towards the walls of the cavity, filling up every inequality, and securing for you a perfect stopping, for the more pressure you bring to bear on the filling the more perfect it becomes. With a cohesive filling, how different is the effect of this instrument. You can make some impression upon the surface, the outside layers of gold, but the mass of the filling does not yield, and your work is finished for good or bad.

Again, non-cohesive foil can be used with a minimum loss of tooth substance, especially in approximal surfaces of the incisors. I believe and practice a free use of chisels and files. Soft gold requires it as much as cohesive, but the principle of wedging enables you to fill without cutting a direct opening to your cavity. Then you may maul and abuse your soft foil, not changing the working qualities thereby; but not so with cohesive, for it responds as quickly, resents any abuse, virtue goes out of it at the first impact of the instrument, and if it is hammered long enough you can get a spring-tempered filling, beautiful in itself but not easy in its surroundings. All this requires room or space, which is often obtained by cutting through the outside, thereby affording the operator a chance to advertise his skill and so fill his heart with pride. This is not true art, for she conceals her methods, and the operator whose patients are recognized by their friends after a sitting is the true artist. Don't try to advertise your skill by showy work, but as much as lieth in you, conceal it.

The Pacific Stomatological Gazette for July, 1895.

"Dental Jurisprudence, Dentist as Expert Witness," by H. R. Wiley, A. B., San Francisco. An expert is a "skilled or experienced person; a person having skill, experience or peculiar knowledge on certain subjects or in certain professions; a scientific witness."

Questions growing out of malpractice suits; and the question of what constitutes fair remuneration for certain professional ser-

vices occasion frequent demands for expert witnesses in the department of dental science as in other professions and sciences. In litigation arising from the practice of dentistry expert witnesses are selected, of course, from the body of qualified dental practitioners, so far as it is possible to do so. The same witness, if he be cognizant of the facts connected with the case on trial, may testify both as an ordinary witness and as an expert; but before giving evidence in the latter capacity his qualification in that respect must be made to appear to the court. The expert witness may, on the one hand, be required to impart information within the lines of exact science, or, on the other hand, he may be required to give an opinion on some question intimately connected with the science or profession, concerning the principle or practice of which he is supposed to possess peculiar knowledge.

In consideration of the facts stated he must undergo a preliminary examination as to his qualification to answer questions touching upon the science or profession under consideration, or to give an opinion concerning facts or conditions intimately connected therewith. In determining the legal capacity of the witness to give expert testimony in the case it was formerly the practice to put him upon his *voir dire*; that is, to administer an oath and give him special preliminary examination as to his qualification; but at present the practice prevails of determining his qualification by preliminary questions upon his examination-in-chief. The direct preliminary examination may be conducted by the attorney for the party who calls the witness and by the court, and a cross examination, more or less searching and not always pleasant, is certain to follow on the part of the attorney for the other side. The question of qualification having been settled, the statements of the witness will receive such weight as his knowledge and experience seem to justify. A positive statement is not always required of the expert witness, and he may give his opinion or impressions as to facts and conditions when the subject matter of the inquiry is such that unskilled or inexperienced persons would be deemed incapable of forming a correct judgment thereon. If served with a subpoena and (when demanded) tendered his necessary traveling expenses, with his legal fee for his first day's attendance, the dentist is bound to obey the summons of the court.

"Professional Ethics," by Thomas Morffew, D. D. S., San Francisco, Cal.; read before the Nevada State Dental Society, June 29, 1895. That the code of dental ethics is much misunderstood among the members of the profession goes without saying, and from this fact the laity cannot but be excused from a general feeling of uncertainty. The code of dental ethics appears to be understood in so many various ways that an attempt at an explanation is satisfactory only to the person whose views are embodied in such a manner as to cause a gentle flow of pleasing thoughts and consequent egotistical applause. Each member of the dental profession—differing honestly, if you please,—has his own idea of what is right and of what should be condemned as wrong. When a thoroughly educated gentleman and a student of dental practice sees fit to move his office from one place to what he considers a more available business locality, and doing so announces to his clientele that such an act has occurred, the majority of the profession at once "jump on him with both feet." This is what is called "advertising." How could any one of the friends and patrons of the D. D. S. know of his change of office unless he either sent them personal notice or allowed a card to be published giving the information desired?

Gentlemen very learned in the profession and great sticklers on the point of ethics and etiquette ask such questions as: "Wherefore the propriety of recognizing the principles of duty applied to dental surgery as constituting a distinct branch of ethical science?" Again: "Are not the rules in ethics which would govern the practitioner the same as in other applications?" There are certain fundamental truths which, of course, underlie all possible applications of ethics; but the adaptation to different conditions of human life call for separate consideration. Ethics as applied to the dental profession involves adaptations which require to be considered apart from the science as a whole. People as a rule, cannot form a true judgment of the merits of a doctor of dental surgery by the character of his work, as can be done with reference to the sister professions of law, medicine and theology. Peculiar responsibilities pertain to the practice of dentistry, aside from those involved in the treatment of difficult cases where the use of anesthetics is required. In the exercise of his profession the dentist naturally becomes more or less

acquainted with the peculiarities of his patients. While it is true that he is not so liable to learn the weakness, faults, vices and family secrets of the patient as does a physician, still he has a very grave responsibility to carry, and one which should call for all the honest manhood which the secrets of the confessional should bind. The rules of dental ethics have a very great moral weight; there are forms to be observed in professional intercourse which are conventional; while it may appear that they have not the binding force which medical etiquette requires, they claim and deserve observance. The common impression that the objects of a code of dental ethics have exclusive reference to the interests of the dental profession is certainly incorrect. The objects are of far more importance to the public welfare than to the operator.

There are a number of men in the profession who are in favor of the abrogation of the dental code of ethics. Such a procedure would not be of advantage to the guild, and would cause great injury, inasmuch as it would leave the status of dentistry in a position from which it was dragged over forty years ago. It is not the question, "Is a dental code desirable?" but that a dental code of ethics should in every way elevate the profession and bring patient and operator nearer—both being the gainer by mutual confidence and friendly feeling. It might be well—in fact the suggestion is made for the purpose of bringing the matter clearly and positively before the members of the dental profession—to change some of the rules in the existing code, or at least, to modify them in such a way that the quack and empiric shall not be allowed to reap the advantages which the unthinking and careless members of society grant them by reason of their advertisements in the public press, or by other methods which the code designates.

The practice of dental surgery, while not a sacred calling in the sense in which this expression is applied to the clerical profession, is one of dignity and honor, and deserves all the attention which its followers can display. It holds out to its candidates the inducements of an honorable pursuit, studies which are not only attractive but which afford ample scope for the mental faculties, labors which may carry with them the satisfaction of careful surgery, and the knowledge that faithful, con-

scientious work has been appreciated by the patient. Combined with all these the fact that there is a large field for acquiring a competency and even wealth, and a fair chance to rise above the level of persons who follow other pursuits in life, is and should be an incentive to study; and in the profession of dental surgery certainly one can always be a student—live and learn.

While the subject of ethics is one of very grave importance, that of etiquette in the dental profession must not be overlooked. In fact they are so closely allied that one cannot well stand without the other. There is the binding force of secrecy as regards all information obtained in connection with professional relations which should never be disregarded. Dentists should be reserved and exercise great judgment in attending to any patient, for reasons which need not be entered into at this time, but which will naturally occur to every practitioner. This is an unwritten law—a law which places the dentist in the position of a father confessor, so to speak; he is the custodian of secrets which, although some might consider them trivial, in the case of a young lady, for instance, if told, would at least cause strained relations between patient and dentist. He is bound to respect the desire expressed by his patient. The sex should not enter into the matter in any way; he is bound in honor to do this, and any right thinking man would consider it a reflection upon his professional character if he was, even incidentally, charged with alluding to the cause of the patient's visit to his office. Aside from the sense of honor, the code affects practitioners of dental surgery mostly in relation to policy. The interests of the public are directly concerned in the agreement which is made between the graduate from the dental college and the oath to which he subscribes. There is a feeling among certain members of the profession that its disciples should be accorded in courts of justice the same rights granted to the medical practitioner, and that private affairs learned during the time the patient and operator are together should not be a matter of either evidence or comment in a court of law.

The Dental Cosmos for July, 1895.

"Trichloracetic Acid," by J. A. Stackhouse, D. D. S., Buffalo, N. Y., read before the Buffalo Dental Association, Nov. 13, 1894. Whether used in the relief of a pericementitis, a general stoma-

titis from any cause, a foul and reeking pus-pocket, or a hypertrophied condition of the gum-tissue, it gives almost immediate good results. The U. S. Pharmacopœia says that its preparation was discovered by Dumas in 1838, and that it is conveniently prepared by treating chloral hydrate with three times its volume of nitric acid, and placing the whole mixture in sunlight until the red fumes have disappeared. The liquid is then distilled, and the portion coming off at 195° C. is pure trichloroacetic acid.

Some three months ago I had a patient suffering from acute gingivitis that I could not alleviate by the usual methods. My treatment consisted in first removing all traces of foreign substance at and below the gum-margins, and treatment with tinctures of aconite and iodine daily on the gums to relieve the pain, subsequently adding acetate-of-morphia paste on pellets of cotton below the gum-margins. This treatment gave temporary relief only; a reaction followed, and his suffering was intense. A brother dentist prescribed a course of treatment which gave the patient almost instant and perfect relief. It consisted in carefully cleansing the pockets containing traces of serous deposits, degenerating food, etc., which in the first place caused the gingivitis and a loose, swollen, and aggravated condition of the gum, with hydrogen peroxid, using this once or twice in a hypodermic syringe, carefully syringing out and disinfecting the pockets. Then drying the gums, a saturated solution of trichloroacetic acid was applied to them, as well as to the pockets, dipping down as deeply as was comfortable to bear. This was sufficient; the patient said relief came almost as if by magic. The gums were further treated likewise,—that is, the pockets were cleansed with peroxid of hydrogen daily for a few days, and carefully cauterized with the acid. All soreness left after the first application.

Another case, a gentleman, aged seventy two, full lower natural denture, with six superior anterior teeth. The superior left cuspid root was partly denuded of gum and covered with serous tartar, again closely adherent to the tooth; the gum was congested, and pus was being exuded from its labial and distal surfaces (the palatal surface being healthy and free from any abnormal condition). After removing all tartar, I proceeded as above, with peroxid of hydrogen, until I got the flow of pus under control. This took me three weeks, for the breaking-down process was very persist-

ent; then upon the same probe I made two applications of the acid inside of a week, and in a few days the arched festoon of gum surrounding the cuspid was found to be healthy and normal.

This trichloroacetic acid is, according to circumstances, a powerful escharotic, astringent, stimulant, and refrigerant. It cauterizes almost instantly, and destroys either epidermis or mucous-membrane surfaces, and in its action it does not provoke general inflammation. If the part where it is applied be kept dry and free from saliva, the application is localized to the part thus applied. Some slight pain is attendant, and at once the circumscribed area turns to a bluish white. In about twelve hours afterward a layer, depending much upon the percentage strength of solution and quantity applied, "sloughs off," leaving a granulated surface which readily heals, and here its astringent energies assert themselves. In a few days the erstwhile sore, inflamed, and suppurating pockets, surrounded by loose and flabby gums, are transformed into a healthy ripple of mucous membrane encircling and hugging closely the periphery of the tooth.

"Regulating Teeth, Supplemented by Crown-work, to Cure Dyspepsia," by F. M. Willis, D. D. S., Augusta, Ga. A young lady, about sixteen years of age, presented herself with the following history: Several years ago she had the left lateral incisor and right first bicuspid of the upper jaw extracted by a country dentist, to correct a slight irregularity. The result was that instead of remedying the condition, there was a general settling in of the entire upper jaw, resulting in a much worse condition than the first. The right superior central incisor was the only one of the upper teeth that touched the lower. There was a quarter-inch space between the upper and lower bicuspids and molars when her jaws were brought together. The patient was unable to properly masticate her food, and consequently was suffering from indigestion so badly that she was unable to attend school, and her system was very much run down.

- A split-plate, with a piano-wire spring, was made to spread the upper bicuspids and molars. The patient wore this appliance for six weeks, calling once a week to have the spring opened as the case progressed. The upper molars and bicuspids were now directly over the corresponding teeth of the lower jaw, having

been spread about a quarter of an inch. The cuspids occupied about the right position, so the next step was to move forward the central and lateral incisors. A gold band was fitted around the right central, with a spud resting behind the other central and the lateral incisor. The left central and the lateral incisors had rotated somewhat in their sockets, so the spuds resting behind them were bent so as to turn these teeth as they moved forward. A plate was made, covering the molars and bicuspid, with a piano-wire spring resting in a notch in the gold band behind the right central. This appliance was worn for a month. The incisors were now straight in the arch, and were far enough forward to allow them to shut outside the lower teeth. Now when her jaws were closed there was less than one-sixteenth of an inch space between the bicuspid and molars of the upper and lower jaws. The lower molars and bicuspid were badly broken down from decay, some of them having been frequently filled. To put them in good condition and raise their grinding surfaces to articulate with the upper teeth, it was decided to crown them with gold. The molars and second bicuspid were capped in the usual way with gold crowns.

In order to avoid too much show of gold on the first bicuspid a new method was resorted to in crowning them. A gold band was fitted around the tooth, extending about a sixteenth of an inch above the end of the tooth. An impression and bite were taken at the same time by covering the tooth and band with plaster and closing the jaws while the plaster was soft. The band and plaster were removed intact, Melotte's fusible metal poured into the band and a pin stuck into the metal to hold in the plaster. The crown was placed on the articulator, and the bite completed with Melotte's metal and plaster. The plaster was now removed from the band, leaving a metallic surface one-sixteenth of an inch below the top of the band, against which to fit a porcelain top for the crown. In this case an ordinary plain tooth, such as is used in vulcanite work, was selected and ground to fit into the gold band, and the right length to articulate with the upper teeth. This porcelain tip was cemented into the gold band, and the whole removed from the articulator. The fusible metal was heated a little and readily came away from the crown. These crowns were cemented on in the mouth and produced a

nice appearance, as nothing but the porcelain showed when the mouth was opened, the lip and tongue entirely hiding the gold band. A crown of this description is particularly advantageous for the lower molars and bicuspid, especially where they need to be brought up some distance above the natural tooth.

None of the appliances used in this case caused the patient any pain or great inconvenience. She can now masticate very well, and is enjoying better health than for years previously.

"Specific Treatment of Necrosis of the Alveoli and Maxillæ with Aromatic Sulfuric Acid," by Dr. W. A. Mills, Baltimore, Md.; read before the American Medical Association at Baltimore, May 8, 1895. A lady, aged thirty, of nervo-bilious temperament, called for advice concerning a fistulous opening situated at the right side of the superior central incisor, from which was discharging freely a dark-colored pus. Upon examination it was found that the right central, lateral, and cuspid were dead. The patient stated that they had been so for seven years or more, and had never been treated. The case was diagnosed as necrosis superinduced by chronic abscesses. The following was prescribed:

R. Acid. sulfuric aromatic.....2 oz.
Aqua, 10 oz.....M.

To be injected by the patient into the fistulous opening five or six times daily, bicarbonate soda and water to be used as an alkaline mouth wash after each injection. Patient was instructed to report every other day for examination.

At the expiration of two weeks all discharge had ceased. The soft tissues had fallen into the cavity made by the action of the aromatic sulfuric acid upon the necrosed tissue. An incision was made extending from the fistulous opening to the right first bicuspid. The cavity was then packed with absorbent cotton saturated with the following:

R. Acid. carbolic, C. P., $\frac{1}{2}$ drachm,
Tinct. iodin, $\frac{1}{2}$ drachm;
Aqua, 12 oz. M.

The patient was then dismissed, to return next day, when the cotton pledget was removed. The soft tissues having been pushed aside, I was able to see to what extent the bony structure

had been diseased. I found the line of necrosis had involved the right facial surface of the superior maxilla from the left central to the right bicuspid, and upward from the alveolar ridge to the anterior nasal spine, a part of which, with the bony structure around the apices of the dead teeth, had been destroyed. Only sufficient alveolar septum remained to hold them in position. I opened the pulp-canals of the three dead teeth, cleaned, disinfected, and filled them at once. The filling-material was forced through the apical foramina from the posterior surface, and dressed in the usual manner. The patient was then dismissed, with instructions to syringe out the cavity twice a day with the carbolic acid and iodine wash as long as the syringe could be used. Afterward the medicament was to be used as a mouth-wash. In five weeks new bone-tissue had filled the void, and no evidence of the part having been diseased remained, the outline being quite perfect and all the tissues in a normal condition.

Another case. A lawyer, aged forty, of sanguo-bilious temperament, presented the following conditions: A fistulous opening situated to the right of the left inferior cuspid, another to the left of the right inferior cuspid, both openings discharging pus copiously. This condition had continued for over a year, and patient failing to get any relief from many doctors and many medicines, consulted a surgeon, who diagnosed his case as necrosis, caused, the surgeon said, by the toxic effect of mercury or by syphilis. That neither was the case the patient protested most vehemently. He was informed that he would have to be operated upon. The first thing the surgeon suggested was to have all the incisors extracted, in the hope that nature would have a better chance to throw off the sequestrum. The patient had no objection to having an operation performed, but did object most strenuously to having his teeth extracted, as he possessed a beautiful set, perfect in form and arrangement; no filled or dead teeth were present in his mouth, he having taken the greatest care from boyhood to preserve them. He consulted me to find out if I could in some way manage to save his teeth. I suggested the sulfuric acid treatment, which I thought would not only save his teeth, but save him from having to undergo an operation. After consulting with the surgeon, it was agreed that I

should take charge of the case, with the understanding that I was to consult with the surgeon as the treatment progressed, and not under any circumstances to change the treatment without his knowledge.

The treatment in this case was the same as in the other case. After the first day's treatment, the patient came to the office early in the morning with a very distressed countenance, and said he believed I had aggravated the trouble, because the flow of pus had been so great during the night he could scarcely sleep. I assured him it was a good sign, and that the remedy was doing its work well. The first week the teeth became movable and tender to the touch. A vulcanite splint plate was made to hold them in place and protect them from shock during the process of mastication. At the expiration of two weeks all discharge had ceased. Then an incision was made from the left fistulous opening to the right, and the cavity packed with absorbent cotton saturated with the carbolic acid and iodine mixture, as in the first case, and left to remain until the next day. When the pledget of cotton was removed, the following conditions were presented. The line of necrosis was found to have involved the facial surface of the inferior maxilla from cuspid to cuspid, slightly exposing the pulps at the apices of two central incisors. The septa were nearly destroyed; the teeth were only held in position by their attachment to the external or posterior plate of the alveolar process and gum-tissue. The same instructions for injection and mouth-wash were given as in the former case. In six weeks the patient was pronounced cured, the teeth all living and firm, and the continuity of the maxillary outline fully restored.

The advantage of this treatment in the oral cavity over that of surgical operation is, the periosteum is in no way injured, and therefore no loss of the continuity of outline of the bony structures occurs, nor is there loss of teeth through the necessary extraction required in an operation for removal of the sequestrum.

"Systemic Medication in Dental Practice," by Wilbur F. Litch, M. D., D. D. S., Phila., Pa.; read before the Penna. State Dental Society, July 10, 1894. The most important pathological condition in which active systemic medication is advantageous, is active inflammation of the periodontal membrane, set up by septic infec-

tion, or by mechanical irritation from confined gases. In a majority of cases it will readily yield to local remedies, but there are many cases where systemic treatment is needed. There are few inflammations not affecting a vital organ more painful, or attended by graver constitutional disturbances. We all know the swollen and throbbing tissues, the quickened pulse, the hypersensitive nervous system, the furred tongue, and disordered digestion; the vitiated secretions and arrested excretions; while beyond these more transient departures from the normal loom up the possibilities of such grave complications as necrosis, septicemia, and trismus, and the still graver possibility of a fatal issue. Speaking broadly, there are two classes of remedies which are available in the systemic treatment of inflammatory conditions. First, those remedies which, acting through the nervous forces controlling the circulatory system, diminish the force and frequency of the pulse, and lessen the blood-impact upon the inflamed area; second, those remedies which, by stimulating the secretory and excretory organs, not only divert the blood-currents from the irritated or inflamed area to the organs thus stimulated, but also diminish blood-pressure by the drain established through the increased excretory outpour thus set up. To this class belong cathartics, emetics, diuretics, and diaphoretics. Of the motor-depressant class, first mentioned, aconite and veratrum viride are the best examples; not only do they profoundly depress the circulation, but usually they stimulate the gastro-intestinal, cutaneous, and urinary secretions in a marked degree. Opium, too, though primarily stimulant, is ultimately depressant to the circulation, while at the same time stimulant to the perspiratory function; so that under proper conditions, especially when combined with a relaxing agent like ipecacuanha, and aided by hot foot-baths and copious hot drinks, marked diaphoresis is one of its most usual physiological effects. Also, the fact that in addition to these properties it has the power of diminishing, or even, for a time, abolishing pain through its paralyzing influence upon the sensory nervous system, adds greatly to the advantages, direct and indirect, which follow its employment, and in periodontal inflammation it can, as a rule, be more advantageously employed than any other agent known to the healing art. Another advantage of opium is that, except in cases of intolerance, it is a perfectly safe remedy.

to administer, at least to an adult. Therefore, for a dentist's use it is far more practicable and desirable than aconite or veratrum viride, both of which are powerful depressant poisons, not uniform in their actions, but, in cases of intolerance, often producing marked toxic symptoms, even when given in minute doses. This is especially true of aconitine, the agent so much employed in homoeopathic practice, and when given in physiological and not mystical quantities, its effect upon the patient should always be carefully watched throughout the whole course of its administration, which the dentist cannot conveniently do. Opium is indicated not only in the early stages of a formative alveolar abscess as a preventive of pus-formation, but when prevention fails, the patient should, with an occasional saline cathartic to correct its constipating tendency, be kept well under its influence throughout the entire evolution of the suppurative process until the final discharge of pus into the oral cavity. Thus the inflammatory action will be circumscribed, and the danger of its extension to associated tissue, such as the maxillary periosteum, greatly lessened, and—what is very important—pain will be reduced to the minimum.

The alkaloidal derivatives from cinchona bark, especially quinina, are also much used in the treatment of inflammatory conditions. Quinina, among its other physiological effects, reduces the circulation and lowers the temperature. In large doses it is found to check the migratory movements of the white blood-corpuscles through the walls of congested capillaries, and thus to limit or prevent pus-formation. It is certainly a valuable ally in the treatment of inflammatory conditions, especially when these are associated with the malarial cachexia.

Of the antipyretic group, consisting mainly of the coal-tar derivations, of which modern organic chemistry is now so prolific, I cannot speak with much commendation. Antipyrin, antifebrin, antikamnia, quinoline, salol, phenacetine, and a host of others, while doubtless possessing a certain degree of efficacy, are as yet too imperfectly understood to warrant any but the most tentative and discriminating experimentation. They reduce temperature, and some of them relieve pain; but the exact manner of their action is obscure and their administration is not infrequently followed by marked cardiac depression which sometimes ends in collapse.

Nearly all dental disorders, not strictly mechanical in origin, if traced back to their initial impulse are found to be unquestionably constitutional in character. Even dental caries, that *fons et origo* of so many other ills, cannot be excepted. Acid-generating organisms around the teeth are harmful only when those organs are weak or imperfect in structure through the faulty operation of those systemic processes which are necessary to their perfect development and continued well-being. Certainly dental caries cannot be successfully treated when the faulty systemic influences causing it are not rectified. In defective calcification, improvement comes from the restoration of nature's tissue-building powers, not in a substitution for her products and processes. I have small faith in the administration of chemical preparations of lime when the powers of digestion and assimilation are too feeble, or too perverted to properly elaborate those already abundantly present in all healthful articles of food. The true cure goes back to primary causes; it arrests vicious dietetic habits, and brings errant functional activities once more under the guidance and dominion of natural law.

Calcareous deposits around the teeth constitute another prolific source of mischief. They are usually local in origin, and are liable to occur in the healthiest organisms; but in many cases of phagadenic pericementitis the symptoms are but local manifestations of a strictly systemic disorder. Not only does the clinical history of many of these cases fully prove that they are gouty in character, but analyses show conclusively the presence of calcium and sodium urates in the deposits themselves. Therefore, merely local measures, however valuable and necessary, cannot effect a permanent cure. At present the internal administration of various lithium compounds, such as lithium carbonate, tartrate or citrate, is the treatment most in favor. By the free administration of such agents it is thought that uric acid may be oxidized to urea, or that a lithium urate may be found which, being readily soluble, will escape from the system through the various excretory channels without that arrest and deposit in articular and muscular tissues which is so liable to occur when the less diffusible calcium or sodium urates are present to excess in the blood. In conjunction with this class of remedies, saline substances which stimulate the action of the more important excretory organs are of value,

and in acute gouty or rheumatic inflammation colchicum, which in full doses is highly eliminative through its active diuretic and cathartic effects, is much employed. However, all such medication will prove ineffective unless conjoined with a strict dietary, for the most important factor in the causation of the disease is undoubtedly the imperfect oxidation of plasma, due either to defective digestion or assimilative power, or to the use of unhealthful foods and drinks.

Two distinctly contrasted physical types are liable to these gouty deposits around the teeth. Gouty troubles most frequently develop in persons of the sanguineous temperament, high and liberal livers; active in youth, but inclined to indolence after full maturity. Appetite and digestion are usually so excellent that the food supply exceeds the demands of the system for tissue-repair, and such excess as cannot be oxidized or excreted is stored up in the form of fat. Here is an individual who eats much, digests well and exercises but little. His blood is rich in carbon and nitrogen compounds, but as he will not assist in the oxidation and healthful elimination of such foods by taking active exercise, he must suffer many ailments, such as lithemia, saccharine diabetes, albuminuria, etc. The other type is the person of nervous temperament who leads a sedentary life, often in rooms imperfectly ventilated, who eats moderately of food not too well selected, and digests and assimilates imperfectly that which is eaten. Plasma thus imperfectly prepared to take its share in tissue metabolism is, of course, difficult of oxidation, and gouty deposits may be formed. This is especially likely to occur in cases in which there is a gouty or rheumatic history in the family. Such cases are helped systemically by regulation of the diet, by a gradual increase of active out-door exercise, and by great attention to normal breathing. Breathing, especially with women, is shallow, and the lungs but imperfectly dilated, thus greatly hindering the normal oxidizing processes. Such cases, which are far more frequent with women than with men, might be classified as the gout of anemia, as the first mentioned and more common type must surely be regarded as the gout of plethora. In both cases physical inertia is probably the chief factor in the disorders under consideration.

There is an acute form of gouty inflammation of the periden-

tal membrane, which often occurs without appreciable calcareous deposits, and primarily without purulent discharge, and which is precisely analogous to similar inflammations in other forms of connective tissue, and usually will yield readily to the same treatment required for gout elsewhere in the body. In such cases there is a sudden access of inflammation of the root membrane, the tooth becomes exquisitely sensitive to the touch, and often highly responsive to thermal changes through associated irritability of the pulp. These cases are often diagnosed as pulp-congestion with associated inflammation of the root-membrane—the reverse is true,—and pulp-devitalization is frequently advised; a method which, adding to the peridental inflammation, can hardly cure, even though it relieves the susceptibility to heat and cold. The best treatment here is active systemic medication: lithium, colchicum, salines, associated with a strict dietary, will speedily relieve and restore the affected organ to usefulness.

The loosened teeth and spongy, bleeding gums of the scorbutic diathesis, a condition impossible to cure when local medication is exclusively employed, is certainly systemic in origin. Scorbutic disorders are generally dependent upon a deficiency in the dietary of succulent vegetables or acid fruits, conjoined with unsanitary surroundings and a generally unhygienic mode of life. A diet either too exclusively nitrogenous or made up too largely of starchy food may cause it. Spongy, bleeding gums are often found with women of feeble and fickle appetite, who practically live upon bread and tea. In all such cases, the systemic cause must be sought for, and eradicated by a corrected diet, systematic exercise, and, if necessary, by systemic medication in which vegetable acids figure prominently.

The Chicago Inter Ocean for July 28, 1895.

[NOTE. It is our intention to print from time to time articles taken from various sources, on general hygiene. These may be advantageously read not only by the dentist, but also by his family, and his patients may profit by the hints contained in such articles. The average dentist does not emphasize sufficiently the connection between general good health and good teeth.—ED. DIGEST.]

"Why the Women Fade," copyright, 1895, by Shirley Dare. If

women only knew what beauty and spirit they might carry far into life's latest season, they would not make a virtue of indifference to them. If a woman choose, she can retain the power of love and charming as long as she has the slightest care for it. If she does not, it argues inability of fortune or of opportunity, in some cases indolence, self-indulgence, and, worst of all, stupid unbelief in the necessity or the means for reaching that end. She doesn't believe that her looks are of so much importance, or that ablutions, fresh air, and careful food make so much difference after all, or that physical neglect means physical falling away and final loss.

It is funny how the ugliest possible women bristle up at the insinuation, most delicately studied and skillfully veiled, that their appearance might be improved ever so little. If you want proof of the assertion, dare to approach the next woman with beard and mustache, or a wart with three hairs on her nose, and sound her on the subject of having those charms relieved by the readiest process. She will explode in your face, "Thank you, she is well enough satisfied with her face as it is, and if you don't like it you can dislike it! Her friends find her good looking enough!" which proves how skillfully friends can conceal their firmest sentiments. It is a merciful provision of nature perhaps, that a woman with bristles, and tartar on her teeth, never has the least misgiving as to her first and only place in the esteem of her family and friends, and it would strike her as most unnecessary and rude to suggest that they might think as highly of her and perhaps more warmly if she were free from those drawbacks. It is the women who have been pretty who feel their least shades of defect most keenly, and are ready to take any means to restore their lost bloom.

For the tarnishing of complexion and fading of rose bloom, which might last into the frosts of later days, vitiated air is responsible more than any other cause. Men eat the same food more or less acceptable that women do, but they have more fresh air, hence they keep their freshness of complexion and clearness of eye years beyond the date when their wives and sisters shrivel and turn yellow. Women in cities and country must demand and obtain this pure air anyhow, to preserve their youth. A hundred minute cares go to secure this. In sleeping rooms and all over

the house, an important precaution begins to impress itself on sanitary observers—the necessity of keeping all sinks and waste-pipes closed when not in use. It is an oversight which has been fatal in countless unknown instances, to leave these ducts of foul air always open, bringing the worst air constantly into living and sleeping rooms. The infection of air, food and drink by this hitherto unsuspected cause is frightful. The best nurses and doctors learn that it is no longer safe to leave milk for children or sick persons in the standing wash basin to keep it cool, for fifteen minutes' absorption of the air given off by the waste vent will infect anything eatable or drinkable with vile, often with deadly vapor. Cases multiply of diphtheria and grip, unerringly traced to infection in this way, and if solids are so infected, how much more is the air, that delicate, sensitive fluid, which imbibes putrescible vapor escaping from slime-lined pipes and deeper receptacles of waste. It is only necessary once to inhale the air from the waste vent of the most sumptuously fitted porcelain basin or bath to be convinced of this. Undoubtedly nine-tenths of the grip which has broken the forces of society rises from these sources, which repeat at close range the dangers of neglected outdoor drainage. You may scald your sinks and flush your pipes daily, but they can never be anything but carriers of offense so long as matter and wastes remain capable of easy, almost instant decomposition, as they are in hot weather. The rule in regard to wash basins and bath tubs is to keep the stoppers in the bowls and clean water standing over them when not in use, no waste water to be left in them, but emptied and rinsed at once. The safety vents are sealed by merely laying a piece of wet paper over them, which adheres for hours.

Soiled clothing is another menace to purity of air in private rooms. Closets where hampers and bags of soiled linen and boots are kept are anything but savory. Anything soiled by sickness, however slight and natural, should at once be thrown into water to soak until cleansed. A deodorizer and disinfectant in some degree readily attainable in country houses is strong suds from common soft soap. More epidemics every year are caused by accumulated minor neglects than anyone dreams, and the low health of many families would marvelously improve by attention to these niceties of domestic habit.

Next to their enervation from want of pure air, women suffer in strength and looks for want of nourishment. I do not say for want of clean and eatable food, but for want of nutrition enough to carry on the work of life and resist the influences which hurry forward age and decay. American women do not eat meat enough to keep up their nerve force. They have been living on various mistaken principles of diet, which agree in being the worst under the circumstances. The woman with plenty of servants, whose sole duties comprise themselves in shopping and paying calls, indulges herself in rich salads, dressings, and made dishes. The overworked housekeeper, who needs to conserve every particle of her strength, takes the dangerous opinion that the less she eats the better, and very likely cuts off meat the first thing from her meager fare. Nervous and run down women who use their brains will find no tonic equal to the best modern doctor's prescription of half a pound of broiled beefsteak twice a day, or at each meal. Of course, the woman who has been starving herself for years is aghast at the idea, which to her savors of gross overfeeding. Two generations of women before her have been sapping the vitality of their descendants by the same foolish sentiment, and the idea that meat is too strengthening, and the neurotic woman of today pays the penalty. Her hollow eyes and cheeks and the fine wrinkles of her skin, the sunken chest and whitening hair betray her low vitality. Food supplies force; fresh animal food supplies nerve force, as nothing else is able to do. To eat heartily of meat, with the usual mixed fare of vegetables, cereals and sweets, is naturally quite beyond any capacity except that of a hunter, farmer or workman.

Possibly a bilious condition prevents appetite, and this must be broken up by appropriate medicine first. Then the best of well-flavored steak or chop, rightly cooked, with crusty bread, coarse bread, oranges or salad, with lemon juice as sole accompaniments, furnish perfect nutrition in exact proportions of meat, cereal, and the acid of fruits. All these should be selected with care, and judging from sorry experience, not one person in a hundred has the slightest judgment what is fit food for one out of health. It is not easy for run down people to take much meat in the beginning to build up, and perhaps it is best to take food in small quantities four or five times a day. Sharp seasoning and

fine table sauces are encouraged to waken the dormant appetite, but appetite or not, the person must eat or fail. It is as unreasonable to say "I have no appetite at all; therefore I will not eat," as to say "I don't feel sleepy nights any more, so I will not go to bed at all." The nervous person who has arrived to the point where she goes without eating is in as risky a condition as if she was doing with one or two hours' sleep a night. Whether she feels sleepy or not she must be made to sleep, and whether she feels like eating or not she must be made to eat—a little perfect food at first, increasing gradually until she craves and relishes her half-pound of cooked beef twice a day. Bear in mind that the half-pound of steak means half a pound of clear, tender, eatable meat, without trimmings or waste, weighing one-half pound after it is cooked. The skeptic as to its value in building up nerve is soon convinced on trial. When after two meals a day of unlimited steak sleep revisits the restless pillow, and the mind which seemed to exist in fragments knits itself together and ideas take new force and coherency, when effort is no longer prostration, one grows very thankful for the brown beefsteak which brings the change. If further conviction is needed, it comes when this diet is interrupted for a day or two, just as one begins to feel its benefit, and one immediately goes back to the old conditions of shaky hands and shakier heart beats, broken sleep, and body and mind only sensible of strain and fatigue. This state of things is brought on by mental and bodily strain plus imperfect food and bad air. Feed nerve and lungs with their appropriate rights of fresh animal food and clean, fresh air, and our poor humanity can bear its portion of grief and struggle without breaking down, without losing its grip on life, and it will not age outwardly before its time, which is past three score and ten. But if a woman will live in close rooms and consider her carpets and curtains more than her complexion, and sleep behind wire screens and Holland blinds which shut the air out like board shutters, she will have a small appetite mornings, play with her toast and coffee, and not care for beefsteak or generous chops. Then she wonders why her hair loses color, and her skin falls into fine wrinkles, and neuralgia and nervous prostration mark her for their prey. Milk will not take the place of meat, neither will eggs, though you eat a nestful. If you undertake to live on vegetable food it takes four

times as much in bulk to afford the same nutrition as fresh meat, and cheese dishes, which the dietarians kindly commend for nutriment, will shortly bring a houseliving woman or man to tumors and sarcomas working such putrefactive changes in the blood as cheese itself requires in time.

The world is learning faster nowadays—at least its medical men are getting hold of the clew to sad disorders which have wrecked generations, and what they say to each other in the medical societies is fit to be known by the laity, especially by women who have the health of households in their hands. Insufficiently fed families send out the epileptic and neurotic degenerates who are no benefit to themselves or the world they trouble. You cannot make men or women broad-minded and charitable so long as they are ill-nourished and bound up, as the old doctors say. You cannot have them cheerful and generous when they are in a bilious state; you cannot have courageous, unselfish natures with the limited force of weak hearts and low circulation; you cannot make devoted, self-sacrificing men or women out of those given to overeating, or fearless, able workers of those who under-eat.

Pure air and strong food are the factors of beauty and use. It is neither easy nor inexpensive to secure them, only it is still harder and costlier to do without them. I hear of a man, not by any means rich, who paid \$250 fee for a single visit from a doctor of notoriety, and \$25 for a small bottle of medicine, only to die a few weeks after. Another workingman, struck down by disease, pays \$5 daily for the visits of two physicians for six weeks, and \$15 for one visit from a good surgeon to tell him that he will never be able to work again, but that he is not to die immediately. A well-ventilated house and cellar, sound bread and plenty of good beef twice a day, with daily bathing, would have saved both these men from knowing a sick day. The mass of people who read these lines and live in boarding-houses or at restaurants cannot command such food as is fit, for much less than \$10 a week table-board, which is beyond nine-tenths of them. The only resource at present is to set up a private frying-pan and gas-stove, when, if one has the right sort of butcher, plenty of good cuts of beefsteak can be accomplished at 12½ cents a pound, provided one knows how to cook it. One pays 50 cents in plain, good res-

taurants for steak which never cost as much, and which is every way satisfactory to support health and strength if you take enough of it. A good deal that is served as tenderloin can be bought at good market prices at 10 or 12 cents a pound, present prices. It is tender, savory, wholesome, and the average man or woman may be thankful to get it as a conscientious cook knows how to serve it. The complete edition of cosmetic lore will come out in seven volumes when published, and three of those will be cookery books. But I doubt the woman is yet born who will write them as they might be written. The high art of food begins with sub-soil drainage and forestry, which cannot be considered in the limits of this paper. But if people knew how much better they might live than they do, under the same conditions and at the same expense, they would hold conventions and express themselves forcibly about it.

The International Dental Journal for July, 1895.

"Theory and Results," by G. Lenox Curtis, M. D., D. D. S., New York City; read before the Central Dental Association of Northern New Jersey. While general surgery and many of its special branches have been brought to a high degree of perfection, where theory and result accord beautifully, there are departments of the great work, of no less importance than the fields now cultivated by the medical profession, which are utterly neglected in the teachings of the medical institutions and in the practice of medical men. The physician considers it beneath his dignity to investigate the mouth as an indicator or cause of disease further than to look at the tongue. He will not refer to the teeth lest he may be classed with the "dentists." Yet the mouth, which is the gate-way to the alimentary tract, the portal through which passes the food which nourishes the body, would seem to demand his first and closest consideration. The completeness of the lack of knowledge on the part of the average physician and surgeon concerning diseases attendant upon or following affections of the teeth, and of the effects, near and remote, which such affections may cause in the organism, is appalling. Many times their patients suffer untold agony or endure prolonged illness because of the doctor's ignorance upon these subjects, which should be among the fundamentals. For much, it not all of this, the medi-

cal institutions of learning are responsible. In the curricula of many of these the teeth, for all the attention that is given to them and their diseases, let alone their anatomical and nervous relations to the remainder of the economy, might as well be foreign bodies. Let us look at a few reports from a plain record of facts.

Nov. 12. A boy, twelve years old, presented for dental operation. Examination showed an overcrowded arch resulting in irregularity of the teeth, which were very poorly calcified and contained many sensitive cavities. In the inferior first molars were extensive amalgam fillings and several disintegrating spots, and the pulps of the superior first molars were dead. The boy was wearing glasses by the order of a doctor, under whose care he had been for a long time for treatment of St. Vitus' dance of the eyes. The boy's eyes, lids, and brows were rapidly and constantly twitching, to the great discomfort of himself and those about him, and he was nervous and irritable. The dentist's experience showed him the relation between the trouble and the teeth, and he advised extraction of the four sixth-years molars. This was done, and in ten days the boy returned, without glasses, and all irregular movements about the eyes had disappeared. He was then taken to the physician, a well-known oculist of good repute, with a statement of what had been done, but the doctor repudiated the idea that the change was owing to the extraction of the teeth, "it was impossible," and claimed that the cure was entirely due to his treatment.

Mr. B., aged fifty-five years, suffering for some time from neuralgia which a dentist thought due to abscess of the inferior left central incisor and inferior left molar, both pulpless. They had been treated for some time, but resisted all efforts to cure disease. On examination, the upper arch was found edentulous, patient wearing an artificial denture. Examination of diseased inferior incisor revealed a canal thoroughly opened. *Fistulæ* opening through the gum near end of root, through which a probe showed extensive absorption of bone. The left lateral and cuspid were found to contain decomposed pulps, and a probe could be passed from the fistula back to the bicuspid below the ends of the roots. The molars were also abscessed, with a fistulous opening through the gum on the lingual surface. The posterior canal was opened through the apex, and the anterior buccal canal was

partially entered and plugged with bamboo. Inferior wisdom-tooth lost. Nov. 27, the central incisor canals were cleaned, sterilized, and filled to the apex with chloro-percha. The canal in the lateral incisor was opened freely and drilled nearly to the apex, but was unable to get nearer than a fraction over one-sixteenth of an inch from the apex. Sterilized and filled with chloro-percha. Patient was referred to dentist for removal of gold crown from cuspid, and to report in four days, at which time examination showed removal of crown; the canal of cuspid had been opened into and dressed with creosote. Dec. 1, canal of cuspid was more fully opened, and a probe passed beyond the apex. Canals sterilized and filled with chloro-percha, some of which oozed out through apical foramen. Cocaine was injected into the gum, and alveolotomy performed. Chloro-percha oozed out through the wound. Cavity in alveolar process around cuspid and incisors burred and curetted away. Debris washed out and wound sterilized Dec. 3. Gums over cuspid considerably swollen. Wound opened with probe, and tincture of iodine injected. Dec. 5, gums less swollen and inflamed. External application of iodine. Anterior buccal canal of molar opened to apex; also posterior canal more freely opened to apex. Search for lingual canals resulted more favorably after drilling considerable dentine away in the floor of the pulp-chamber. Canals found to be small and almost closed by deposit of secondary dentine, but larger upon opening into them. Both were opened to the apex so that a delicate probe passed beyond. All four canals were flooded with carbolic acid; ropes of cotton were packed in, and sealed to disinfect. Next day canals were packed with iodoform. No unusual disturbance around tooth. Dec. 7, all signs of inflammation had subsided, and the teeth were entirely comfortable. The canals were dried and filled with chloro-percha, which was forced through the apical foramen of the distal canals, and oozed through the fistula in the gum. The floor of the pulp chamber was carefully lined with gutta-percha, and the cavity filled with cotton. Case referred to dentist for filling. Under cocaine a bur was passed through the fistula, abscess and debris burred and curetted away; wound washed out with electrozone. Wound washed daily for several days with disinfectant and tincture of iodine. Patient complained all

the time of severe neuralgic pain in left side of face, more especially when tired or at night. Dentist's attention directed to second left inferior molar which was very sensitive, owing to abrasion in mastication and having been ground down so as to make the teeth on plate above occlude properly. Advised to look for irritation of pulp, but did not. Dec. 19, after an exceedingly restless and painful night, patient consulted family physician, who bitterly censured the advice and operations of the dentist and of myself, and demanded that he immediately go to a professional extractor and have the teeth drawn, leaving the posterior molar untouched. It was very difficult to dissuade patient from taking physician's advice. Again repeated necessity of care of back molar; also opened through the gum and curetted around the anterior buccal root of the first molar with a view to blood-letting and to relieve slight congestion around tooth, and also in pulp of back molar. The pain continued and the dentist saw the wisdom of opening into the second molar, which revealed four pulp stones about the size of a pin's head as the cause of the trouble, on the removal of which, along with the entire pulp, all pain disappeared, and the patient was rendered comfortable.

These cases, and many similar ones, simply show how little physicians appreciate the important part which the condition of the teeth plays in disease. There are also many other cases where the dentist discovers the cause of the trouble, it may be with the patient's general health, but he is overruled by the physician, whose authority and knowledge are supposed by the patient to be supreme. The physician, in formulating his theories for the explanation of obscure troubles, entirely ignores the teeth. He has never been taught to appreciate them as a possible element in any disorder except toothache, or perhaps a neuralgia of the face. The medical schools are no aid to him, the text-books give him no inkling of the truth. The teeth are the province of the dentist, and he is too often looked upon with contempt by the doctor as being a one-sided, semi-educated man, when really this very one-sidedness has made him a master in oral and facial diseases. Upon these points he does not vainly theorize, but gets results, and these results are his recommendation to the medical profession.

The Dental Review for July, 1895.

"Duties of Dentist to Patient—Duties of Patient to Dentist." by A. W. McCandless, D. D. S., Chicago; read before the Illinois State Dental Society, May, 1895. The first duty of a dentist to his patient is to study his temperament, as different people must be handled differently. The next step is to gain his confidence, which may be done in the case of nervous people by pretending to accomplish something without causing the least pain. Gradually his apprehension lessens as your gentle manner convinces him that you appreciate his feelings, until you gain his entire confidence and a sense of security comes over him, for he feels that while he is in your hands he will be treated as an animate being that has flesh and blood, and is capable of experiencing pain. When his confidence is gained do not lose it by deceiving him, for it pays to be honest with a patient. If he is apprehensive, reason with him; but if he cannot be persuaded that you are getting no particular pleasure out of his pain, and absolutely refuses to help you in your endeavors to do what is best for him, your duty ends there. It is a waste of time, energy, and vitality to try to benefit such a person. Be firm and refuse to continue with the work; this may make him realize for the first time how he has been conducting himself, and thus shame him into co-operation. A dentist should use all the aids that advanced thought and investigation have given us to relieve pain. Everything about his office should be as neat and attractive as possible, and the disagreeable features should be kept in the background. Send for your patients at least twice a year; in this way you will save them much trouble and expense, and so benefit both patient and operator. It is a dentist's duty to charge well for his services; his patients will think more of him, and he will do his work better.

A dentist should never run down another practitioner, yet some men seem afraid to speak well of a competitor, lest it might cause their patients to leave them and try the other, but it is a grave error. The ordinary individual takes with a great deal of allowance what you may say that is derogatory of another dentist, for he thinks at once that were you not engaged in the practice of the same profession you would not say such disagreeable things. On the contrary, you increase your patient's admiration for your-

self by being big enough and broad enough to speak in terms of praise of other dentists. Some other duties a dentist owes his patients are: To attend and belong to the state dental society, and thus keep abreast of the times; to conduct himself in an ethical and upright manner; to "Be sure you are a member of the Dental Protective Association," for by so doing you find yourself in good society; to subscribe for all the good dental journals; and lastly, to do your very best at anything and everything you undertake, for therein lies the secret of permanent success.

"Duties from a Patient to a Dentist, by a Patient," by Miss Sarah G. Dickinson, a patient of Dr. McCandless. If you find me obscure on this subject, ascribe it to my personal infidelity, and to my utter denial of the existence of aforesaid duties. In the first place, in what I am about to say, I do not refer to that immaculate creature so beautifully portrayed by Dr. McCandless. No, drop this pretty myth, it has no existence. I have to do with practical life. Instead of this charming, genial man who never existed, and never will exist, I betake myself to the dentist of the present age, pure and simple, chiefly simple.

We approach the sacred precinct. As a fitting preliminary of what is to follow, we are first shot perpendicularly into the air for a few thousand feet, and find our dentist located just under the moon. A favorite trick of the profession. The gods only know why they perch so high. Is it that the screams and agonizing shrieks of the victims may fall unheeded on the desolate air, and die away before they reach the pavement? Let us now enter the arena. We are first confronted by odd, ill-matched pieces of furniture, gloomy and heavy. The walls are unadorned save for a framed diploma and a ghastly collection of little heads representing a certain graduating class in which our worthy dentist figured in some remote age. The window panes are opaque from dirt and smoke, and cast a dim, religious light over the place.

When you are settled in the springless chair, and the torture has begun, the following rules should be followed: First, see that you become irritable and peevish the moment you find yourself in the chair, otherwise you astonish the dentist so he cannot do good work. In fact, swear if the apparatus permits. If no

jump often and "spontaneous like." It keeps the dentist following your movements, and makes him gleeful when he overtakes them. Second, when an unusually severe shock is received, clutch the manipulating arm of the dentist convulsively. It flatters him and makes him feel that you will always cling to him thusly. Third, if the rubber dam isn't too tight scream at regular intervals, and inform the operator that he is killing you. This pleases him and makes him kill some more, and by the time he gets through killing you've been a corpse seventy times seven. Fourth, snatch at the rubber every now and then. Tear it off occasionally for the dentist has plenty of them and you may as well get your money's worth. Fifth, always speak of your dentist in society as the Inquisition itself. Sixth, treat him as if he were your lowest menial. What is he, my friends, more or less than a great tool that works all the little tools? Hath a dentist eyes? Hath it ears? Hath it flesh and blood? Doth it feel? Nay, my friends, it hath not, it doth not. The moment a man takes his D. D. S., I care not how manly, how brave, how good, how sympathetic, how tender-hearted, how sweet and amiable he was, that moment he loses all these qualities—he loses his individuality and becomes an automaton—a thing. Seventh, always eat onions or peppermint before visiting your dentist. It keeps him respectful and prevents any undue familiarity arising from the close proximity of patient and operator. Eighth, when suffering from acute pain don't keep still about it. He might possibly pass to the grave without ever knowing just to what degree Fahrenheit your suffering arose. Keep him informed. Ninth, if you are a lady and obliged by conventionalities to suppress naughty words, just before they rise to the lips make a grimace at him. It awakens every sympathetic nerve in his body, and he loves you for it. Practice in front of the mirror before you come so as to make your face express all you feel and ever will feel on the subject. Tenth, don't show too much confidence in your dentist. It might make him conceited, and if he feels that you think him a fool, an ignoramus, he is sure to do good work for you. Eleventh, don't help your dentist by being patient, long-suffering and brave. Heroines were never born to grace the dental chair. One should not waste heroic qualities in the small bypaths of life; keep them for the highways where they will show. Again,

I say, don't help your dentist. He is paid for it, and well paid. The balance scales might tip in his favor if you were to assist him by your demeanor, he might possibly be better enabled to exercise his skill. But we know from long experience that his object is not to excel as a workman, it is purely mercenary. Let him see this in your attitude, as it acts as a tonic to his shattered system. Twelfth, when you are through, and the dentist modestly presents his bill, act as if he owed *you* something. Find fault with the exorbitant price. Express in good, plain English your inability to see how he could have put in so much time and trouble. A dentist takes pleasure in explaining to a simple, virginal mind the ins and outs of dentistry. Shut the door quickly and not too noiselessly, so that he may be sure you are gone. He'll be so glad. Shake the dust from your feet and try another dentist next time.

It is my firm conviction that these few practical suggestions, if conscientiously carried out, will tend to elevate the standard of dentists in our country.

"A Porcelain Crown," by Geo. W. Schwartz, M. D., D. D. S., Chicago. In making crowns for the anterior teeth in a number of cases it is not desirable to band the roots. Crowns baked to a post are conceded to be the strongest that are easily made. Prepare the root by grinding even just below the free margin of the gum; take a piece of platinum, No. 33 or 34, a little larger than the prepared root, anneal it well, then burnish it up to the end of the root. This is easily done with rubber of an ordinary lead pencil. Place the platinum on the root, hold it in place with the rubber end of the pencil, tap the pencil with a mallet, and you have a good impression of the root. Trim this platinum to the exact margin of the end of the root. Next comes the post, which is easily made; take a piece of platinum plate narrower at the top than the bottom, fold it twice and flow a small piece of pure gold on it to stiffen it and hold the joints together. Put the platinum plate on the end of the root, punch the hole for the post, push the post to place, remove and solder with pure gold, select a plate tooth and fit to the post which has been left long for the pins of the tooth to be pinched around. By this method you can get the exact position you desire for the tooth. Having the tooth in

place, solder the post and tooth together with pure gold. This can be quickly and safely done without investment by putting the gold in place and placing the case in the furnace, gradually heating the furnace until the gold flows. After cooling, you are now ready to restore contour of the lingual surface in porcelain by building up with gum body, and baking. If you wish, after the crown is finished you can remove the platinum from the crown, and you still have a perfect fit and an ideal crown.

"Compressed Air in Dentistry," by C. C. Southwell, D. D. S., Milwaukee, Wis.; read before the Illinois State Dental Society, May, 1895. Following is a brief description of the simple outfit I have in use: attached above my laboratory sink and to the city water service I have an automatic air-pump. This is piped to reach a common kitchen hot-water tank or boiler, which for economy of space I have suspended from the ceiling. This in turn is piped to both laboratory bench and operating chair. I strongly advise against the overuse of rubber tubing. It is unsightly, the unions are seldom tight, and in time it will disintegrate; while metal pipe or tubing once properly united will remain indefinitely.

In the laboratory the chief use of compressed air is soldering. Most gas furnaces depend on a strong Bunsen blast, and a pressure of twenty pounds will do the work perfectly. As applied to the gasoline reservoir of a continuous gum furnace it insures steady combustion, which is very desirable.

Passing to the operating chair and in speaking of its most common use there in my hands, I ask you to witness the support given to the so-called painless dentists and be reminded of what I do not term a weakness on the part of the public. One of the most frequent causes of pain and discomfort during and succeeding the introduction of a large filling is the excessive use of ligatures and clamps for the retention of the rubber dam. These can be dispensed with in almost every instance, to be used only as aids in its first adjustment and in these suggestions I ask no one to make any appreciable departure from present tactics. It is not only true kindness to avoid causing unnecessary pain; it is knightly courtesy. Ligatures placed, crowded, tied and left far under the free margin of the gum can be justly characterized as a

damnable institution. Please use the thread and clamp (habit will compel you to use both to a certain extent) only as conveniences in getting the rubber dam in place; wipe away the excess of saliva with cotton or bibulous paper, then a strong blast of air, warmed if need be, will so dry the surface of the average tooth that the dam will remain in place to the end of the operation, barring accidents that the thread and clamp would not wholly meet.

Warmed air for chip blowing needs no endorsement. Those who have a current of electricity need only call in an electrical expert. A device for inhibiting the current is very easily contrived about the air passing through the metal coil or tube. In the absence of electricity, a coil of metal tubing over the ordinary alcohol flame used for annealing gold will serve admirably, and an ordinary flow of air can be heated in thirty seconds and kept heated. Raise the flame or increase the current, and with a delicate nozzle you have suggested a more perfect and amenable root-canal drier than it has been my pleasure to see in operation. To return the air to the temperature of the room requires but a few seconds, and with this same nozzle, directing a flow of air on a filling which you are finishing with the disk, the usual pain from overheating can be *wholly dispensed with*. For hastening the evaporation of volatiles and reducing the temperature during the use of a bur in the preparation of cavities, or for the extraction of teeth, thus lessening pain, a strong and easily controlled pressure on an ordinary atomizer will prove itself invaluable. As the lowered temperature passes quickly, objection can be raised that without the best co-operation on the part of the patient and a steady, vigorous operating hand, careful work cannot always be assumed when hurriedly prosecuted. However, I have used it with slightly varying success for some time, and speak moderately when I say that in many instances the preparation of troublesome approximal cavities has been accomplished without pain and that marked relief has been given in all others.

Perhaps the chief reason for the failure of crowns and bridge-work lies in the fact that the drying of the foundation is difficult, and to keep it dry is still more so. A steady forcible blast at a pressure of fifteen to twenty-five pounds will not only dry the foundation, but the force of the blast will positively and per-

fectly inhibit the weeping of viscid saliva or blood from the gums. The efficiency of a strong pointed blast in revealing hidden pieces of tartar in pyogenic cavities will appeal at once to the discriminative mind. If you will bring to mind the troublesome approximal cavity which presents itself to the busy operator every day, you can easily realize the soothing effect of a gentle flow of air, at about 100° F., directed into the cavity, beginning as soon as the dam is well adjusted and continued by the assistant until the filling is completed. The effect is simply beatific. In capping pulps the *steady* flow of warm air is a valuable adjunct. The occasional perplexing so-called submarine filling can be made a very simple problem by a well-directed stream of air, for with the dam reasonably well in place it will require but little ingenuity to meet any ordinary emergency. In the fitting of bands I find it of frequent and valuable service in driving out the collection of saliva, or both saliva and blood, enabling me to quickly locate and adjust irregularities.

The British Journal of Dental Science for July, 1895.

"On Malignant Disease of the Peridental Membrane," by A. Hopewell Smith, L. R. C. P. Lond., M. R. C. S., L. D. S. Eng.; reprinted from *The Lancet*. During the course of some recent investigations in the subject of the patho-histology of the peridental membrane, I found among my specimens several marked examples of a new growth intimately associated with and springing from the fibrous periosteum of the teeth—a condition which seems to have escaped the attention of the writers of surgical and dental text-books. These periosteal tumours present on examination appearances which warrant more than a passing notice and afford a subject of great interest and importance to general and dental surgeons alike. The cases under consideration are not absolutely unique, as Mr. Oakley Coles has exhibited a specimen of round-celled sarcoma attached to a molar tooth.

To those unfamiliar with the microscopical appearances of the peridental membrane a brief description of its histology is needful for a larger comprehension of the patho-histology of the disease. The alveolo-dental periosteum is a thin layer of connective tissue which surrounds the roots of teeth and occupies a position between them and their osseous sockets. It consists of bundles of large

white connective tissue fibres arranged chiefly in a transverse direction, and is, in fact, "much like any ordinary fibrous membrane," being freely supplied with blood-vessels and nerves. The cellular elements vary considerably, and include cementoblasts, osteoblasts, osteoclasts, and fibroblasts, together with cells and tissues of an "indifferent" nature. In addition there are occasionally found cementoclasts, calcospherite spherules, and the so-called "lymphatic spaces" described by Dr. G. V. Black. Of all these the fibrous tissues and fibroblasts predominate.

The chief points of interest in connection with these peridental tumours are that they are found in connection with the roots of sound teeth, and that their characteristics are those of round-celled (alveolar) sarcomata.

1. *Seats of occurrence*.—The growth is confined, as its *locus principii*, to the periosteum of the molar teeth, the maxillary being much oftener affected than the mandibular series. It is generally seen to rise from a point situated at the junction of the roots with the body of the tooth.

2. *Microscopical appearances*.—The tumours vary in size from that of a split pea to a small nut, and have a smooth, convoluted, rarely ragged surface. They are firm to the touch and are of a deep red color. The teeth themselves are non-carious and exhibit in their hard parts no traces of disease except slight attrition of their cusps, and (in some cases) absorption of the apices of the roots. They are markedly loose, and signs of chronic inflammation of the periosteum, accompanied by an accumulation of tartar, are often noticed.

3. The *etiology* of the disease is obscure; but there seems to be predisposition on the part of the growths to attack the fibrous membrane of the teeth of females about the period of the menopause. Long-continued and powerful friction, as shown by the wearing down of the cusps, is probably the exciting cause.

4. The *subjective symptoms* point chiefly to long continued sharp pain, increased on pressure, the course of the disease lasting sometimes several months. The pain is excruciating at times, and such as to render necessary immediate extraction of the loosened organ.

5. *Objective symptoms*.—On examining the mouth, at first there is sometimes almost entire absence of swelling or of any usual

inflammatory signs, and the tissues are not markedly indurated. There may be slight suppuration. If the disease is not far advanced diagnosis is only complete after removal of tooth. Later, well-marked symptoms of malignancy appear.

6. *Microscopical appearances*.—The growths consist of masses of cells held together by a fine network of fibrous tissue which is very dense here or very loose there, and is in some places apparently undergoing fibrification or chondrification. In the center of the growth this network is scanty, but the intercellular tissue is conspicuous outside. Vessels are scanty in the center and have extremely thin walls, they ramify among the cells. In the outer portion they are larger (but not dilated) and have normal walls. The cells themselves are for the most part rounded in shape and considerably larger than red blood-corpuscles. They contain one or more nuclei and are devoid of any definite cell wall. Great numbers of spindle cells exist. There is little hæmorrhage into the tissues, probably because of the small size of the growth, and because it has not advanced sufficiently to allow of large hæmorrhages to take place in its substance; but small extravasations of blood corpuscles are noticed here and there. Microscopically the growth is practically indistinguishable from granulation tissue, as has been pointed out by Mr. Knyvett Gordon; considered from a clinical aspect, however, there can be no doubt as to its malignant nature.

The jaw was excised for malignant disease of the antrum by Mr. W. J. Pilcher of Boston, to whom I am indebted for the specimen. The photograph exhibits the first right maxillary molar *in situ*, with its peridental membrane greatly enlarged by the new growth. Infiltration of the surrounding parts has taken place, the gum, antral mucous membrane, and alveolar process being alike affected, and the latter partially absorbed. There is also absorption of the apical regions of both the labial roots. The patho-histology of this growth is identical with that of the isolated cases already mentioned, and from the evidence at hand it seems to be clear that the latter are only earlier stages of the former.

To sum up, it may be said that sarcomatous disease of the peridental membrane is not rare in its earlier forms, but that it is very seldom met with in an advanced condition; and that

removal of the molar tooth fortunately cuts short its career if taken sufficiently early, but if it is allowed to continue it constitutes another starting place for malignant disease of the maxillæ.

Ash & Sons' Quarterly Circular for June, 1895.

"Steam Pressure Gauges." The following instructions for fixing and using pressure gauges may interest our readers:—1. A pressure gauge should not, as a rule, be worked beyond one-half the maximum pressure to which it is graduated; thus a 300 lbs. gauge should be employed for a working pressure of 150 lbs. The pointer of the gauge will then be in a vertical position at the normal working pressure. 2. The gauge should be connected with the steam boiler by means of a water-syphon. The syphon should have a free bore through at least $\frac{3}{8}$ in. 3. The gauge should always be attached above the highest Water Level of a boiler, so as to prevent the admission of impurities from the water into the syphon and the gauge. 4. The gauge should never be attached in immediate contact with the boiler, and, generally speaking, every gauge should be amply protected against excessive heating, as this tends to produce a binding in the mechanism of the gauge, and, moreover, the continuous heating has an effect on the elasticity of the gauge spring and rapidly deteriorates the accuracy of the gauge. The body of the gauge, when firmly touched by hand should never feel uncomfortably warm. 5. A steam-tight joint must be made in the connection of the gauge, as the moisture deposited from the blowing of steam in a defective joint is liable to find its way into the interior of the gauge and interfere with its correct working. The joint should be made on the seat provided for the purpose by means of a lead washer carefully placed in position; for low pressures a leather washer may be employed, but india-rubber should never be used for this purpose. The joint should never be made in the thread of the connection, nor should red or white lead be employed for the purpose, as these materials are liable to get into the passage and obstruct the inlet to the gauge. 6. The taps of pressure gauges should always be opened and closed slowly. Scores of gauges are ruined daily by the careless operation of gauge taps. Where gauges are subject to sudden fluctuations of pressure a check valve must be employed.

The Dental Practitioner and Advertiser for July, 1895.

"Bacteriology and Dental Decay," by R. H. Hofheinz, D. D.S.; read before the Seventh District Dental Society, at Rochester, April 23 and 24, 1895. The bacteria comprise a group of infinitesimal organic unicellular beings, physiologically resembling the fungi proper in many instances. They increase by fission or through the medium of spores. Many kinds of bacteria possess locomotive power, and were formerly classed among infusoria. De Bary classified the chief forms into:

1. Cocci: iso-diametric (elongated, single cells.)

2. Rod forms: cylindrical, less frequently spindle shaped cells, or short chains of the same.

3. Screw forms: rods twisted after pattern of a corkscrew.

I. To the first group (coccus forms) belong:

(a) Micrococci.

(b) Macrococci, remarkably large cocci.

(c) Diplococci, which arise during the fission of cocci.

II. To the second (rod forms) belong:

(a) Bacilli, whose longitudinal axis is greater than the transverse.

(b) Clostridium, spindle shaped cells.

(c) Leptothrix, thread-shaped, chains of cells, and many others.

III. To the third group (screw forms) belong:

(a) Vibriones, undulating twists.

(b) Spirilla, rigid rods, screw like.

(c) Spirochætes (streptococci, chain staphylococci, grape aggregation.)

According to Henke's analysis, the chemical composition of bacteria is:

Water,	84.81 per cent.
Albumen,	13.03 "
Fat,	1.20 "
Ashes,	0.64 "
Undetermined residue,	0.32 "

According to this a large amount of water is required; therefore, a nutrient solution should be composed of albumen, carbohydrates and small quantities of salt. This is confirmed by the fact that such solutions form the best culture media. The

juices and accumulations of the human mouth at all times present such a medium.

Temperature exerts a great influence upon the vegetation of bacteria. The temperature which permits of the most rapid increase varies, but ranges between 25° – 40° C. (77° – 104° F.). Above 40° the development diminishes, while below 30° they proliferate slowly.

Oxygen also exerts special influence upon the life of bacteria. Three kinds are known in this connection:

1. Where oxygen is indispensable, "aërobic."
2. Where they thrive better without or demand exclusion of air entirely, "anærobic."
3. The third class thrives with or without.

Acids and alkalies retard the development, with few exceptions. A neutral medium is best adapted to them.

Regarding their action upon lifeless matter, they are divided into: (a) Fermentation bacteria. (b) Color-forming bacteria, (green and yellow). (c) Gas-forming bacteria. (d) Putrefaction bacteria.

The great Dutch scientist, Leeuwenhoek, in 1683, first discovered that small organisms existed in the human mouth. He detected the "*spirillum sputigenum*." Miller mentions six kinds of bacteria which are always present in the mouth—*leptothrix in-nominata*, *bacillus buccalis*, *spirillum sputigenum*, etc. The process of fermentation going on in the oral cavity offers no exception to the rule that all fermentative and putrefactive processes are conditioned by the presence of living buccal organisms. The action of bacteria upon carbohydrates is the most essential factor to us, as the origin of decay depends upon it. The experiments of Miller have abundantly shown this. His test is easily performed: Take 200 C. C. of fresh saliva, and mix with two grains of starch, and allow the mixture to stand for eight hours at blood temperature. It is filtered and heated to 212° F. to stop fermentation. It is then found strongly acid.

The relative action of micro-organism in tooth decay interests us today more than all other things. All sorts of causes have been assigned for decay of teeth. The following ten are the most important: (1) Depraved juices accumulated in teeth, (Hippocrates, 456 B. C.) (2) Disturbances of nutrition (Galen,

131 A. D.) (3) Inflammation (Hunter, Bell, etc., Heitzman, Bodecker, Abbott). (4) Worms (especially prevalent in China). (5) Putrefaction. (6) Chemical dissolution (Tomes, Magitot, and Wedl). (7) Parasitic theory (Leber and Rottenstein, Milles and Underwood, Black, and last but not least, Miller). (8) Electrolytic decomposition. (9) Diverse causes. (10) Chemico-parasitic influence.

The two most prominent theories of the day are the "Inflammation" theory, advanced by Heitzman, Bodecker and Abbott, and the "Parasitic" theory, advanced by Miller, Black, and others. Bodecker has largely advanced towards Miller's theory. He says: "The modern views of caries are based upon bacteriological researches. Previous to 1882, before bacteriology became a systematized science, the origin of caries was thought to be a mere decalcification of enamel and dentine, but even at that time much valuable work was done." Abbott has also considerably advanced toward Miller's views.

The purely chemical view of decay is out of the question at this date, as no such conditions can be produced by acid alone as the microscope reveals in carious sections. Acids certainly have a decalcifying effect on dental tissues. The identity of a destructive process in the tooth with decay itself can only be established by the microscope. The greatest argument for the parasitic theory Miller has furnished by his experiments in artificial decay.

Magitot has made extensive observations in this direction. Miller asserts that artificial decay can be accomplished so perfectly that the most experienced microscopist cannot tell it from natural. Having seen a large number of his specimens, I can only humbly agree with him. His method of experimentation is very simple. He cuts up a number of perfectly sound teeth, but of different densities, into different sizes, and places them in a mixture of bread and saliva. This mixture he keeps for three months at a temperature of 37° C. After that time he finds all the characteristics of natural decay. All phenomena of so-called white decay are present. If the mixture is allowed to stand until the reaction becomes alkaline, or if the pieces are exposed to the action of different articles of food, such as coffee, tea, tobacco, fruit, etc., all possible shades of color are produced, just as found in the mouth. The characteristics are the same microscopically as those

of natural decay. The canaliculi are filled with bacterial masses, the thickening of Neuman's sheath and swelling of fibrils can be plainly seen. Discoloration seems more prevalent where nitrogenous substances are present.

Atkinson said that all cases of artificial decay could easily be discriminated from natural decay, by the fact that in artificial decay the micro-organisms followed the line of tubules without shrinking into the consolidated intertubular substance. Miller has shown by hundreds of specimens that both in artificial and natural decay the micro-organisms in deeper parts of decaying tissue are confined to the tubules, whereas those nearer the surface gradually liquefy the basis substance, thus producing the caverns which you will see in many of the specimens.

I believe, therefore, that we have reason to assume that dental decay is a chemico-parasitical process, consisting of two distinct stages: First. Decalcification or softening of the tissue. Second. Dissolution of the softened mass.

Having mentioned the process of fermentation in the mouth, I may add that the acid is chiefly derived from particles of amylaceous and saccharine substances which lodge in the retaining places. These undergo fermentation. The fermentation of carbohydrates produces chiefly lactic acid, and this is the chief destroyer of the tissue in its first stage.

The second cause of the caries, the dissolving of the softened tissue, is caused by bacteria. We know through our culture experiments that mouth bacteria dissolve albuminous substances, converting them into a soluble mass. We know that the basis substance of dentine consists of an albuminous substance. The explanation therefore seems easy, and is readily observable under the microscope.

EXTRAORDINARY TEMPERATURES.—A. Jacoby, of New York, is authority for the statement that in the case of a hysterical laborer the bodily temperature reached $65^{\circ}\text{C}.$; that later on it hovered for five days around $50^{\circ}\text{C}.$ Dr. Welch beat this remarkable case by another one in which the temperature was $77^{\circ}\text{C}.$, or $171^{\circ}\text{F}.$ The *Berliner Klin. Wochenschrift* registers a slight degree of doubt by exclamation points and would not believe the statement if it were not for Dr. Jacoby's connection with it. These Europeans are sadly defective in their medical education if it comes to extraordinary and unusual cases of pyramidal magnitude.—*Medical Review.*

Letters.

NEW YORK LETTER.

NEW YORK, Aug. 14, 1895.

To the Editor of the Dental Digest,

MR. EDITOR:—"Canal-Work," as it was delineated by a genuine Jersey Hornet, proved a highly entertainable subject. Prof. J. Foster Flagg was the author of it. Poor DeLesseps came to grief in his enterprise, while others found "millions in it." So the genial Prof. sees millions of success in the practice that he has so fully investigated, including the latest novelty brought out last year by Dr. Callahan, viz., Sulphuric Acid for chemically cleaning the putrescent debris from pulp-canals. Investigation is the only way to establish anything of an exact science, and Prof. Flagg tells us he has done this. For this reason he has the floor. He says enthusiastically and dramatically—so like him—that it is a decidedly rational practice. He fully evinced his former vim, and fairly vibrated with an eagerness that many would do well to try and emulate. We never saw him looking so well; dressed very nattily, white duck trousers, a short, fashionable sack coat, and trimmed in the latest cut of the tonsorial art. Good men don't die young, necessarily. We told him he looked every inch a retired railroad president. He has retired from active practice and gives all his time to the Philadelphia College, with which he has been so long identified. He says he doesn't retract a word of his "New Departure," and his deductions in this last paper have also come with some staying qualities. Prof. Truman called him out to explain why the action of arsenic should not continue its destructive effects on through the apical foramen, and was referred to his, Prof. Flagg's answer some twenty years ago before the American Dental Association. It was, that he had proved by chemists that aside from the portion of the pulp which came into actual contact with the arsenic, in a large number of pulps there could be traced no portion of the arsenic in the tissue. If we recall rightly, in his former statements he did claim that the strangulation of the pulp at the apex cut off further action of the acid. His paper will be read with much interest, and those who know

him will add the pleasant face and figure, which will give additional zest.

Prof. Garretson was a notable figure that came in a very genial way—so great a personal attraction of his—to his defense regarding the use of arsenic, for it was thought that Prof. Flagg left it to be inferred that he regarded it lightly just how long the arsenic might remain in contact with the pulp. Prof. Garretson had so much confidence in his associate, so long in company with him, that he believed he had come to acquire some knowledge of the different degrees of "Resistability" the patient might possess. We would say right here that we are convinced that this big word has a volume of meaning and should become more familiar to us. No one but Prof. Garretson could coin such a term. The larger meaning reduced to our fuller understanding would enter into a greater helpfulness in making a diagnosis. We think this thought is so much left out in this connection that what might be a successful practice is defeated because of it. As a truism, "All discord follows along the line of least resistance." All intelligent dentists have cause to be proud of Prof. Garretson. He said to us, "We are getting older, are we not?" Yes, but like wine, better for the age.

We are more and more impressed with the fact that the ranks of the old timers are rapidly thinning out; we miss them at these yearly meetings. The Hornets have but few gray hairs, the always smiling and genial Stockton being a notable exception, and he has no peer in gray matter. Some of them have more stinging qualities; they are all needed, if the poison is kept out. We were never stung by a hornet but once, and we remember it vividly to this day. When a boy we sat down on a heap of wood shavings in which they had nested, and as soon as they touched us through our thin trousers we hurried away and have never sat on a heap of shavings since. There are some things we cannot forget, and some things which are better forgotten.

One man had good memory at Asbury Park; he said he belonged to New York and had never gone through but one root-canal. For a moment he seemed not a little confused, then came back and gave the year, 1872; (it was not 1492). No, he will not be here the next time that America is discovered. This same man understood Prof. Flagg to say that he had been through *forty-five*

times, but he corrected himself by saying that it might have been twenty-five. This recalls a case reported in the August *International*, with the pictorial illustration of a drill through the side of a root, in connection with the sulphuric acid treatment. We don't surmise that the acid had anything to do with such a deviation.

We were impressed in hearing Prof. Flagg's paper that greater simplicity will come more and more into the future of canal-work, and just here we add that Dr. Crouse's testimony "of twenty-five years' practice and not a failure," goes for more than talk. We cannot understand why anyone wants to fill pulp-canals for future repair; it is not necessary.

We wonder how the "high-school" practitioners of the future will view our teachings. It occurs to us that when these students come on the scene there will be a demand for "high-school" teachers. "Deestrickt Skule" education will not count then.

By way of information, we will add here that we think Prof. Flagg's idea of strangulation seems to convey the thought that the pulp dies by the act of strangulation alone, produced by the blood corpuscles causing it to so enlarge that it cuts off further circulation through the apex. So it would seem that the arsenic simply affects the pulp-tissue by irritation at the point of contact, and that the arsenic itself is not carried into the tissue, hence no trace of it can be found except at the point of contact.

The dual meetings at the Park did not come up to the expectations, for not over two hundred were present, and only one from California, which does not look much like an attempt to get the American Dental Association out to the Pacific Coast. New England was never so poorly represented. We hear on all sides, from those who are the best supporters of the American, that too much politics have nearly destroyed its usefulness. However, the exhibit was large and very creditable; it is certainly evident that mouth-washes are clamoring for recognition.

It was truly a gracious thing to re-elect Dr. Crawford for another year, particularly as at the time of election he was very sick, we are sorry to say, seriously so. We, together with his many friends, trust that ere this is published we shall hear that he is himself again.

Asbury Park is a notably "dry" place; the water is all salt. In a small room at the Columbia we noticed on a table a large num-

ber of bottles filled with liquids; possibly this was a formula adopted by the State Society for the mouth. We met a colored gentleman going in with an old demijohn and his face was all aglow, looking as though he had been promised a watermelon if he would be very faithful to the initiated. For further particulars attend the next meeting of the Northern New Jersey Society and all mysteries will be made clear. Cordially, M. A. G.

SOME ENCOURAGING LETTERS.

BROOKLYN, July 30, 1895.

To the Editor of Dental Digest:

DEAR DOCTOR:—The DIGEST for July duly received. The first six lines on Page 387 are worth one hundred dollars to every young member of our profession. And many of our older practitioners would do well to cut them out, and then read them every time a peddler comes in to sell them something 'on tick.' Wish you every success, I remain sincerely yours,

M. P. BEECHER.

NORTH SAN JUAN, Cal., May 19, 1895.

To the Editor of the Dental Digest:

DEAR DOCTOR:—Recently I saw you quoted as follows in a discussion on pulpless teeth: "If a patient returned to me with a swollen face, I would not know how to apologize," or something to that effect. Do you mean to say that in all your long and extensive practice you have never had any failures in root-canal filling? If so, I should very much desire your method of operation.

I am young in dentistry (five years), but thought I was doing pretty well in root-canal filling until I saw you quoted. I have lost three in my entire practice, one chronic abscess, and two filled immediately after pulp was removed. The last one was filled May 5, and the patient came back today having a well-developed abscess. The other immediate-filled root after pulp extirpation was in the same family. I think their constitutions, etc., are favorable to abscesses. I think it is better to wait until all soreness and inflammation subside before filling, even in immediate and

healthy pulp extirpation. I am confined to the "wild and woolly" mining camps of the Sierras, and cannot keep in touch with the foremost, except through journals. But nevertheless, I aim to do good work and to progress.

I am well satisfied with the Dental Protective Supply Co., and with their goods. The DIGEST is also very good. I have been amused at some of the "kicking" letters you have published. That is the great trouble and drawback in our profession—too many bosses and kickers.

When I was a student at the B. C. D. S., in Baltimore, Prof. R. B. Winder gave us his views concerning you and the Dental Protective Association, and further added in his forcible way, "It is the greatest boon on earth for American dentists, and every one of you ought to join it." He was a great operator, a rare teacher, and never failed to spot a good thing when he saw it. He has now passed into the Great Unknown where we trust he has no need of Protective Associations. But I took his sage advice, joined the Association with the first ten dollars earned at the chair after I began practice, put one hundred dollars into the Supply Co., and subscribed for the DIGEST, and am not sorry for any of these acts

Yours truly,
I. B. ARCHER.

SING SING, N. Y., July 22, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—THE DENTAL DIGEST comes as a welcome guest and valuable counsellor to my office. It is like its editor, a God-sent benefactor to our profession. Those who are young in the ranks, and know little or nothing of the oppression of the past, may not appreciate the noble victories you have won, but those who are honest and true to their deeper convictions will not fail to recognize them. Do not expect much appreciation, for those who have given the most self-sacrificing labor for the good of men have often fared the worst. Why? Because there are some men with souls "so small that ten thousand of them might be rattled in a peanut shell, or on a needle's point might race and ne'er be cramped for space." May God continue to be your inspiration and to speed you on. I remain, very sincerely,

WM. M. FANCHER.

SPENCER, Iowa, July 18, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—I want to assure you of my entire sympathy in this D. P. A. business, and I think the profession generally are with you. The man who would criticise or withhold his active co-operation in this struggle *deserves* to have the halter about his neck that the Patent Fiends would place there. Success to you and the DIGEST. Fraternally yours,

CHAS. W. CRAWFORD.

CHICAGO, June 15, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—Many thanks for sending me the DIGEST right along in spite of my neglecting to send you the subscription before this. I assure you that my delay was not in any way due to a lack of appreciation of your journal, as it is today one of my greatest helps. I am quite sure that those who read it once will wish it always. It gives a fair and splendid resume of all that is worth reading in the various dental journals in such a concise manner that I feel greatly indebted to its editor for having started such a helpful journal. I assure you of my best wishes for your journal's success. Very truly,

H. H. SCHUHMANN.

A CASE OF FOOT AND MOUTH DISEASE IN MAN.—Schever (*Dermatologische Zeitschrift*) reports an instance of the transference of this disease to man. After briefly reviewing the literature of the subject, the author reports the following case: A laborer, 43 years old, was employed in taking care of cattle affected with foot and mouth disease. Two weeks before coming under observation he was compelled to give up his work, having moderate fever, angina, headache, and constipation. About the same time an eruption appeared upon the upper lip and the hands. This eruption appeared as vesicles filled with a sero-purulent fluid. At the time of observation these had disappeared, being replaced by pale-violet nodules, some of which were slightly scaly, others exuded a small quantity of serum from small erosions on their summits. These lesions were not painful nor sensitive to pressure. Lymphangitis and swelling of the axillary glands accompanied the eruption. Upon the upper lip was a hard lesion covered with a bloody crust. This was, like the others, painless. In most of the lesions healing took place with the formation of smooth scars; but in a few instances wart-like growths formed, under which healing occurred later.—*University Medical Journal*.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

THE MEETINGS AT ASBURY PARK.

Included in which were the National Board of Dental Examiners, the College Faculty Association, The National Association of Dental Technicians, the Dental Protective Association, and, including them all, the American Dental Association. Taken together these meetings which have just closed, may be regarded as the most important ever held, as they all show a decided advance in the right direction.

One great improvement over former years was that most of the associations either met long enough before the American, or at such times during the session that most of their work was done without interfering with the main meeting. Furthermore, we understand that they are arranging to have all their work completed next year before the time for convening the American.

The proceedings show better work, and there was much more valuable material from which to prepare reports than ever before. However, the reports of the different sections showed a lack of proper preparation in the sections before presentation to the meeting. Too much crude material was brought in without proper condensation. A step towards remedying this was taken in the form of a resolution instructing the executive committee to prepare the next program so that the sections should work a greater part of each day, and then have one general daily meeting, thus giving the rest of the time to section work. We believe this will make the results much more valuable and creditable.

The attendance was not so large as a meeting held in such an accessible place should be. There are many active workers in the profession who, for some reason unknown to us, take no inter-

est in these meetings, little realizing the influence these important organizations exert, and how much the future of the dental profession is dependent upon them. We regard this as very unfortunate, as the usefulness of the meetings would be much increased by their co-operation, and on the other hand, those who remain away do themselves a great injustice, for we take the position that practitioners generally cannot afford to lose the inspiration gained at these annual meetings. If those who should be there, yet are not, would explain why they do not attend, perhaps the difficulty could be removed. We have sometimes thought that the time of meeting might be bad, as many practitioners take their vacations just about that time, and they feel that they must have the rest. If it is the general feeling that some other season of the year would be productive of a fuller attendance, that sentiment should be expressed.

The illness of Pres. Crawford, who was sick during the entire session, cast a feeling of sorrow over the gathering. However, he was re-elected, and we hope that next year he will not be so unfortunate.

One feature which was very detrimental to the success of the meetings was that the hotels were not nearly able to accommodate all the guests, consequently, the dentists were so scattered that it was almost impossible to find anyone you wished, except during the sessions. The lack of one large hotel where all the delegates could be together, was probably the greatest drawback. Otherwise, the accommodations were good, and the members of the New Jersey State society, who made themselves responsible for the entertainment of the visitors, did their part well and deserve great praise.

THE DENTAL PROTECTIVE ASSOCIATION.

The meeting of prominent members of the Protective Association at Asbury Park was in the nature of a council of war. It was called because we were uncertain whether the members wished this to be a permanent organization, or thought it best to end the present litigation and then disband the Association.

After a reasonably full explanation of what the Association had done, its membership, the state of its finances, and what was yet to be accomplished, the members present, without a dissenting voice, agreed that it would be very detrimental to disband, and that the organization must be put on a more permanent basis. This feeling was emphasized when facts which have never been made public were stated, to the effect that there were numerous corporations and combinations now kept in check by the Association, and that if it were given up they would be an annoyance to the dentists not yet realized. Especially, as the dental profession as a whole are the easiest kind of prey for patent vampires and others who wish to get part of our earnings without giving any real equivalent.

The sentiment was very unanimous that it was proper and right that an effort should be made to take the protection away from those not joining with us. Up to this time the Protective Association has freed the whole profession from patent abuse by different companies claiming royalty, and the work has been supported by a fraction of the profession. This is manifestly unfair and unjust, and is very demoralizing to those who receive such benefits, yet pay nothing for them.

This meeting was the most hopeful and encouraging sign we have seen since the Association was organized. The active interest felt in the matter took definite shape when a committee was appointed to draft an appeal to all the members, asking for united co-operation to get all the decent members of the profession now outside the Association to join in this movement. The report of this committee's work will soon be in the hands of the members.

LETTERS OF ENCOURAGEMENT.

We have published from time to time some letters criticising these reform movements. In this issue we publish a few out of a great many letters of commendation that are constantly being received by us, and especially praising the *Digest*. Many of these are from members of the profession outside the Protective Association, and we just mention here that this reflects a little on those

members of the Association who have not yet subscribed. We do not publish these letters because they praise us individually, but because we wish to show that there are some members of the dental profession who understand and appreciate what we are trying to do, and who are willing to give their active support.

METHODS OF DENTAL JOURNALISM.

As we get older in this work perhaps we shall not be so surprised at the existing methods of journalism in dentistry, but just at present we are puzzled by the lack of what we had supposed existed, viz., journalistic courtesy. We frequently make a digest of an article and then find that the article was published some time before in a different journal from the one we are reviewing. Or, we make a digest of an article and then see that same article run through four or five journals in the next month or two. In many instances no credit is given to the journal which first published the article, so that a journal may appear to have much original matter, when in reality almost every article has appeared before elsewhere. We speak of these things simply by way of inquiry, as we wish to know if it is not customary to give credit for articles, items, and titles, and to tell from where they are taken.

Notices.

FIRST DISTRICT DENTAL SOCIETY OF ILLINOIS.

The First District Dental Society of Illinois will hold its annual meeting at Canton, Ills., Sept. 10, 11 and 12th. An interesting program has been prepared.

W. O. BUTLER, LaHarpe, Sec'y.

MINNESOTA STATE DENTAL ASSOCIATION.

The Minnesota State Dental Association will hold its annual meeting in St. Paul, Sept. 11, 12 and 13th, 1895. The executive committee has arranged an interesting program. A cordial invitation is extended to the profession in this and other states.

H. L. CRUTTENDEN, Northfield, Sec'y.

AMERICAN COLLEGE OF DENTAL SURGERY.

The American College of Dental Surgery of Chicago moved last May from its quarters on Wabash Ave. to a more commodious building in the business centre of the city. While the new quarters were being re-modeled a fire destroyed most of the building; but the property was well insured, and as the workmen had not made much progress, the loss is not heavy. The winter session will open early in October.

News Summary.

PERSONAL.—Dr. L. P. Bethel, editor of the *Ohio Dental Journal*, has been elected to the faculty of the Western Reserve University Dental Department.

TO SECURE RUBBER DAM.—A year or so ago Dr. Hetrick gave a hint as to the value of sandarach varnish to secure rubber-dam to the teeth, instead of the painful silk ligature. It was one of the most valuable items I ever received, and if it has not been universally adopted it should be.—*Dr. Bergstresser in Dental Office and Laboratory.*

We, as well as many others, have used this method for some years.—Ed DIGEST.

TO REMOVE RUBBER FROM TEETH.—A simple and easy method of abstracting and cleaning the teeth from vulcanite rubber is, first put the teeth in dry plaster on an iron spoon, covering the teeth with it. Place the spoon with its contents in the fire and let it remain till the plaster becomes red-hot, then withdraw the spoon from the fire, leaving it to cool, which occurs almost immediately. Then remove them from the plaster, and the teeth will be found to be perfectly clear and uninjured, as when received from the manufactory. I have also used this method with vulcanite mounted cases of two and three teeth. No trace whatever of any rubber adhering to the teeth. The teeth also become firmer by being annealed.—*Dr. Bernhard, Bath, England.*

A STEP IN ADVANCE.—The following agreement was submitted to and signed by every member of the last graduating class of the Michigan University Dental College. The faculty will in the future ask each graduate to sign it: "To maintain the dignity and to further the honor of the profession which I am entering, and in loyalty to my Alma Mater and the desires and precepts of its faculty, I, the undersigned, willingly and cheerfully promise to abide by the 'code of ethics' of the American Dental Association. I will strive to deport myself in such manner as to claim the respect of the public, the good-will of my co-workers in the profession and the continued esteem of my instructors and fellow-graduates. If at any time I should fail to so act, I shall expect to forfeit all claims to personal or professional recognition by my Alma Mater and class-mates."

The Dental Digest.

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CHICAGO, SEPTEMBER, 1895.

No. 9.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 452, No. 8, Vol. 1.]

In our last article we discussed methods of treatment for very young patients, in cases where none of the permanent teeth had yet erupted, giving reasons why the temporary teeth should be kept in the mouth until the permanent set are ready to occupy their places. We made the claim that during the services then performed the child's training should be begun and the co-operation of the parents should be enlisted. As a rule the assistance of the parents is easily secured when their interest is once aroused. There is a certain kind of information that they can get from their dentist only, and this for the most part verbally, for the reason that there is scarcely any printed matter which will enable them to inform themselves on the subject. There have been spasmodic efforts on the part of different societies to furnish matter, resulting in pamphlets being printed and issued by the members to their patients, but the real needs have not as yet been supplied.

This question of popular education on the subject of dentistry has also been urged from time to time by individual members of the profession, and now and then a practitioner has distributed leaflets to his patients, but this has often drifted into a violation of professional ethics, bringing the author into disrepute with his colleagues. We are convinced that this much-needed and much-desired instruction on the proper care of the teeth, and especially on the care and treatment of children's teeth, must come from the

practitioner while at work at the chair. There is a great lack of definite information on this subject on the part of the community, not because there is not a desire, but because means of getting it are so imperfect that it is almost impossible to acquire it. There is nothing for which parents are more eager and anxious than to have their children possess a good set of teeth, and they greatly appreciate any information and advice which you give them. Mothers realize the importance of a good set of teeth in a child's mouth, both for beauty and for usefulness, and a proper training to secure them is one of the great needs of the age. The breath, if made foetid by diseased teeth, must be injurious to the lungs and blood as well as offensive to all, its owner included. As decay of the teeth and diseases of the mouth are increasing yearly, causing abscesses, facial deformities, neuralgia, dyspepsia, headaches, eye and ear troubles, etc., it is about time both parents and dentists try to better the existing conditions.

We have already urged in the DIGEST the co-operation of the practitioners with us, so as to collect the proper information for distribution among the people at large. If we can have articles written upon this subject, we will edit and reprint them in book form for the dentists to furnish to their patients, thus helping them both. Much additional care and service would be given, the teeth and general health of the community would be improved, and our profession would reap a rich reward in a greatly increased amount of work. We think we are justified in saying that few practitioners do everything for their patients that should be done. To take proper care of a child from the beginning of second dentition to maturity is no small task. To see to it that the teeth are in proper position in the mouth, well cared for, and in good chewing condition when the patient reaches twenty-one, requires more painstaking effort on the part of both operator and patient than either give as a rule.

We have already urged the treatment and care of the first teeth, both to secure proper mastication of food and to assist in producing regularity in the second set. What proportion of dentists take pains to give the parents of all the children they work for the information they need? How many parents are well informed concerning even those things which seem to the dentist too simple to be explained? Ask the average parent how many teeth there are

in the first set and see what answer you will get. Then tell him or her that there are but twenty, and that all the molars which come back of these twenty are permanent teeth and should be carefully watched, and note the look of surprise. No more frequent mistake is made by the parent than that of allowing the sixth year molar to decay, supposing it to be a temporary tooth. How many operators caution parents on this point before it is too late? How many urge frequent examinations, especially in the case of children?

All through childhood children should go to their dentist every few months; if they neglect to do so he should send for them. Parents do not know that as soon as the sixth year molar is erupted it generally needs some attention, which if given in time saves much trouble. These teeth being the first of the permanent set and coming as they do about the sixth year, the child is so young that but little care is taken to keep them clean, and often decay has made considerable progress in the imperfect fissures before the teeth are fully erupted. Had they been attended to at the proper time, a moderate amount of care would have arrested the caries and kept these valuable organs in good condition, but from neglect the pulps have become exposed, and the teeth either been extracted or the chances of saving them lessened.

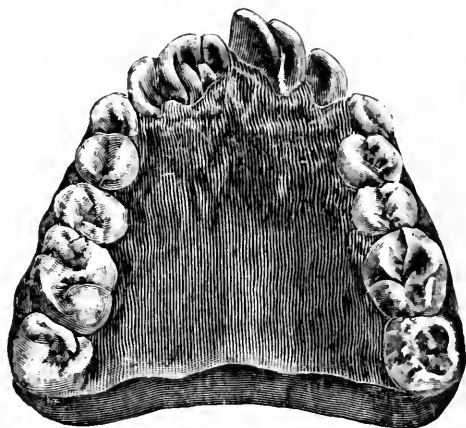
If, when these teeth are first erupted, the open and defective fissures, so common at this early time of life, are filled with tin, oxyphosphate, or even amalgam, they can be kept in a fair state of preservation until ossification is more complete, when a better filling can be made and the organs preserved. And if we are doing our duty all this time, we are instilling habits of care and cleanliness which will be of invaluable benefit in the way of lessening dental caries, and, as we have stated in previous articles, no greater or more valuable service can be rendered by us. If the tendency to decay is very pronounced we should look into the causes, and the chances of improving this condition are most likely to be found in the methods of living. A most important duty is then before us, that of regulating the patient's diet, which will be discussed in the next article.

(TO BE CONTINUED.)

AN INTERESTING CASE IN PRACTICE.

BY A. H. PECK, D.D.S., M. D., CHICAGO.

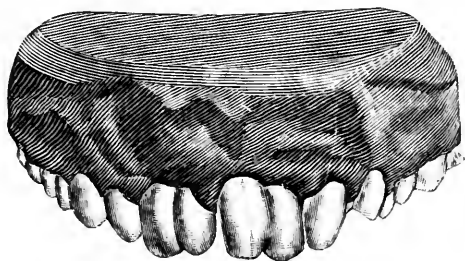
A boy, about twelve years old, presented with both his upper central incisors double. A large cavity had formed in the middle of the left central, extending through from the labial to the lingual surface. Each of these halves of the tooth possessed a separate and distinct root. The plates of enamel of the two parts were united near the incisal edges, also at the cervix, the union being perfect. The two parts had evidently been united through-



out the entire length of the crown, the union being more or less imperfect, no doubt, previous to the formation of the carious cavity. In the mesial half of this double tooth the pulp was dead; in the distal half it was alive. The cavity had developed to such an extent that it was impossible to tell whether the coronal portions of the pulp-chambers had been united at first, or whether they had always been separated from each other. However, there is no doubt in my mind but that the latter condition had existed.

The two parts of the right central were united only at the cervical portion. A cavity had also developed in the centre of this tooth, but not to so great an extent as in the other. The pulps were not exposed in either part, and the coronal portions had positively never been united. From a careful test with heat the

pulps were found to be alive in each part. The roots of this tooth, as nearly as could be determined from the examination it was possible to make, were united for a considerable distance towards



the apices. This case is very interesting since, so far as I know, it is the only one of its kind on record. Excepting for these two double teeth, the others were normal in shape and number.

WEIGHT EQUIVALENTS.—To convert grains into grammes, multiply by 0.065; to convert grammes into grains, multiply by 15.5; to convert drachms into grammes, multiply by 3.9; to convert ounces (avoir.) into grammes, multiply by 28.4; to convert pounds into grammes, multiply by 453.6.

DANGERS OF ATHLETIC SPORTS IN CHILDHOOD.—M. Le Gendre, of Paris, in an article on this subject, showed that the period of growth created certain morbid predispositions, as a tendency to excessive arterial tension, manifested by palpitations, epistaxis, pains in the head; in arthritic individuals, susceptibility to chill when the body is in a state of perspiration; in neuro-arthritic persons, a tendency towards atony of the stomach, increased by the abundant ingestion of fluids; in others, of nervous temperament, a predisposition to headaches, tics, chorea, and a craving for violent distraction. Under such conditions it is easy to understand how excess in physical exercise may be followed by serious consequences. After violent games of foot-ball, tennis, or the too prolonged use of the bicycle, the fever of over-exertion may supervene, with the complications that accompany it, as prostration, curvatures, pain, osteomyelitis, dyspepsia with great anorexia, dilatation of the heart, palpitations, syncope, true asystole, and possibly hypertrophy, articular inflammation, or typhilitis. The author therefore believed it of great importance for parents to have their children examined before allowing them to give themselves up to any particular sport, and to forbid it if there be any trouble of the circulatory, locomotor, digestive, or nervous system; to insist upon progressive and gradual increase of the exercise, whatever it be; and, while encouraging athletics and gymnastics, to forbid any competition in these sports.—*Revue des Maladies de l'Enfance in Ann. of Hyg.*

TO CURE THE TOOTH ACH.

COPIED BY C. F. BESORE, D.D. S., IDA GROVE, IA., FROM VARLO'S HUSBANDRY, PUBLISHED 1785.

Let the party that is troubled with the tooth ach lie on the contrary side, and drop three drops of the juice of rue into the ear on that side the tooth acheth, and let it remain an hour or two and it will remove the pain. If a needle is run through a wood louse, and immediately touch the aching tooth with that needle, it will cease to ach. Sometimes the tooth ach proceeds from a cold, so that the air gets between the gums and the teeth and raises them out of the socket, which causes a very great pain though the teeth be all sound. The cure in this case is to press a cork very hard between the teeth a considerable time to press them down even, and rub the gums with gun powder until they bleed.

May dew gathered from corn is also given as a specific for removal of freckles.

A POCKET EXPLOSION.—On the morning of Saturday, Jan. 19, Dr. Davidson was called to see a patient and found him suffering from an extensive burn of the inner surface of the left thigh, with another burn of smaller extent, but more severe, extending over the thenar half of the left palm. The history of the injury elicited was that the patient had been suffering from sore throat and had purchased some chlorate of potash lozenges. These he was carrying in his trousers pocket rolled up in a piece of paper. One of the lozenges was loose in the pocket, which also contained a box of safety matches. While moving about he suddenly heard a noise like the hissing of a squib before the detonation, and saw smoke issuing from his pocket, which he grasped from the outside thinking to smother the fire. An explosion followed which blew out the whole of the front of the trousers leg. There was no loud noise, only an exaggeration of the hissing noise heard at first, but there was a considerable volume of flame. What had evidently happened was that the loose lozenge, by rubbing on the composition on the outside of the box of safety matches, had become ignited, and that the rest of the lozenges had been exploded by it, causing the chief explosion. On the room being searched the remains of several of the lozenges were found. They had been reduced to about a third of their normal size and the outside of them appeared scorched. The patient had fully one ounce of the lozenges in his pocket at the time of the occurrence. On January 25 the wounds were healing rapidly and were almost entirely covered with new epidermis.—*Lancet*.

Digests.

Items of Interest for August, 1895.

"REFITTING PLATES," by J. E. Davis, B. S., D. D. S., Columbus, O. Instead of sawing out the palate of the plate I simply scrape it thoroughly to cause the new rubber to adhere firmly to the old plate. I have also removed the old plate entirely from the teeth after placing the case in an articulator and building plaster on the opposite half of articulator till the grinding surfaces of the teeth are slightly imbedded. The teeth can easily be placed in their imprints in the plaster, and of course they are in exactly the same position as before removing them from the old plate. The new model on opposite half of articulator will be in correct position to retain the former articulation of teeth. After waxing teeth to model a trial in the mouth is best. This gives an entire new plate on the old teeth and no danger of blackened joints, as they can be cleaned while removed from old plate. These methods take but little more work than repairing a case, while the result is equal to a new denture for the patient. Maroon-rubber is best in this work as it flows easiest and adheres best to an old plate. Many patients insist on having a denture soon after their teeth are extracted, and it may be very loose, but can be refitted in the above manner. In three months the operation may again be needed. I have repeated it three or four times on the same plate. It is equally useful for upper and lower dentures.

"TO MAKE PLATES OF UNIFORM THICKNESS," by D. W. Barker. The first essential is a base plate of the right thickness and perfectly smooth, and which will retain its thickness and smoothness, and no wax should be added to it. Wax base plates will not answer these requirements as they are too easily marred. Old modeling compound is just right, works as easily as wax, retains the shape of the model, and will not bend out of shape. While soft, press it out to the required thickness (1-12 inch) between sheets of glass slightly soaped to prevent sticking. A cutter made of tin, like a cake-cutter, is very handy for cutting out the forms. If an air chamber is to be used, the lead form should be put on the model before the base plate, and to prevent the edge of the metal

from cutting through the base plate it should have its edge beveled down thin, or a line of stiff wax run around the edge beveling to the model. The plate will be as smooth as the glass, of uniform thickness, and easily finished.

"SOME INTERESTING SUGGESTIONS," by D. Scott Thomas, Somerset, O. The ground surface of a piece of a plate glass is a very satisfactory surface from which to pick up pieces of amalgam for filling. There are rare cases in which the shape or size of an excavator will suit better than any amalgam carrier for carrying a piece of amalgam to the cavity, and you can pick up pieces of amalgam with the smooth surface of an excavator or flat burnisher by gently pressing them on it with a sliding motion.

The easiest way to extract a badly broken down superior molar is to divide it on a line between the palatine and the buccal roots, using large sized spear pointed and fissure drills in the engine, then insert one beak of the forceps in the place drilled and remove the roots separately.

After making the wax base-plate as smooth as possible by quick puffs of flame with the blow-pipe, you can, after it cools, give it a fine polish by stroking gently with the finger.

The most simple and convenient way to keep rubber from entering the joints of gum sections is to jar the filled flask before putting on the top, lifting and setting it down hard enough on the work-bench to cause the joints to fill with plaster from the outside. If they have not entirely filled, put a little thin plaster-of-paris on the inside of the joints immediately after scalding the wax from the pins while the case is still wet.

The Dental Cosmos for August, 1895.

"SUCCESSFUL TREATMENT OF A CASE OF GUNSHOT WOUND OF THE LOWER JAW, CAUSING COMPOUND COMMINUTED FRACTURE," by R. G. Beale, D.D. S., Phila., Pa.; read before the Penna. Ass'n. of Dental Surgeons. The case was that of Dr. K., who was awakened from his sleep to find a burglar pointing a pistol at him. He arose to a sitting posture, and as he did so the man fired, the bullet striking the doctor in the right cheek, passing obliquely downward without injury to the upper jaw, striking the crown of the lower first molar, passing completely through the body of the

bone, driving the anterior root of the tooth into the basilar portion of the jaw, the bullet lodging in the neck, and causing a compound comminuted fracture of the lower jaw.

Upon reaching the hospital, I found the patient had been shot five days previously; the ball had been extracted from the neck, and a drainage-tube inserted. An examination of the mouth showed a perfect denture, excepting the first molar, which had been shattered to pieces, and considerable laceration of the gums. The second and third molars were very loose and leaning toward the tongue; crepitation and displacement were well marked. Owing to the swollen and tender condition of the side of the face and neck, a more minute examination could not then be made. An upper impression was taken. Before taking the lower, the fracture was reduced and held in position by an assistant. The fragments acted admirably as a wedge to hold the arch of the jaw in position, and aided in securing a sharp impression. For this purpose modelling compound was used, with the surface oiled to insure sharpness. Casts were obtained from the impressions, the lower cast cut at the place of fracture, and the sections thus made so arranged as to antagonize perfectly with the upper teeth. A splint of vulcanite spanning the fracture was made on these casts, thus holding the loosened teeth in place. It extended to the third molars on the opposite side, and terminated so as not to impinge upon the gums. The usual opening was made in front for feeding, and a portion of the rubber cut away along the cutting edges of the upper and lower front teeth to ascertain when the splint was in position. A day later the splint was introduced and bandaged securely in place. After consultation it was decided to remove the fragments of bone. The patient was etherized and the fragments removed posterior to the second bicuspid and anterior to the second molar, including the roots of the first molar and part of the internal and external alveolar plates of the second and third molars, making in all ten pieces of bone. The fracture proper measured at the alveolar border one inch and a quarter, and at the basilar border three-quarters of an inch, including one inch of the inferior dental nerve and artery. The second and third molars were pressed into place, the wound was thoroughly cleansed, and the splint and bandage placed in position. The operation of removing the bone was rather premature, as only five

days had elapsed since the time of the assault, and hence exfoliation was only partial. Part of the periosteum and the attachment of the mylo-hyoid muscle clung to the bone, but did no harm, as granulations formed promptly and the wound healed rapidly. The lower jaw could not be held very firmly in the splint, owing to pressure made by the bandage on the swollen side of the face and neck.

Five days later a sub-mental splint of vulcanite and a compress of wood were put on and held in position by a bandage spanning the swelling. The compress consisted of a piece of wood five inches long and one and one-half inches wide, with a crescent shaped depression cut in the back to accommodate the throat, and extending out on each side of the face, to allow the bandage to span the swelling. From each side of the board a piece of surgeon's webbing was attached, which was buckled to a cap covering the top of the head. With this form of compress and bandage direct pressure could be made on the jaw without inconveniencing the patient. By the device of fitting beneath the chin a compress, the ends of which extended beyond the point of greatest convexity of the cheeks, all lateral pressure from the bandage was avoided and entire comfort to the patient secured. From the parts being held quiet and in perfect position, thorough union was accomplished, and the splint and bandage were removed in twenty-eight days, which was remarkable, considering the great amount of granulation-tissue required to fill the space. The occlusion of the teeth was normal. It is most interesting to note that the severing of the inferior dental nerve and artery did not result in the death of any of the nerves of the teeth, but merely in a partial loss of sensation for a short time on the right side of the face. The cicatrix which formed after removal of the drainage-tube was about the size of a small marble. The patient, by manipulation with the thumb and finger, brought about absorption of this lump in a short time.

A very quick way to make a splint is to mold the rubber directly on the tin-foil covering the casts, and fill the space between the jaws with a piece of rubber, leaving the opening in front. The indentations in the rubber should be covered with a thin layer of clean wax. In vulcanizing the rubber this will take the place of the wax and give its surface a smooth finish. For this case a sub-

mental splint was made of vulcanite on a cast taken from an impression of the chin. Sub-mental splints of this material can be used universally. If too small for a case, it can be very readily molded by heating and bending; if too large, a layer of soft modeling compound can be laid inside and molded to the chin. If direct pressure is necessary at any one point, place a layer of compound where needed, and have the inner side well padded with cotton.

"RHIZODONTROPY, OR HULLIHEN'S OPERATION," by Dr. S. B. Brown, Ft. Wayne, Ind., read before the Tri-State Meeting at Detroit, June 18, 1895. Fifty years ago Dr. S. P. Hullihen devised an operation for the surgical treatment of dental pulps, which consisted in drilling through the gum and alveoli, a line within the margin of the latter, into the pulp-canal, either before or after filling operations, for the relief of exposed or congested pulps. Where life remained the purpose was to give vent only, wounding the pulp as slightly as possible, aiming to preserve its vitality, the gum acting as a valve for its further protection. The drill was usually driven with a bow and slack cord.

The writer had revived this fragment of history because of its bearing on the problem how best to preserve the deciduous teeth. In the treatment of these teeth with pulp-complications, he had, several years since, re-adopted the operation of rhizodontropy with modifications, the results being more satisfactory than with any other line of treatment. The method consists in thoroughly removing the pulp tissue or its debris, when exposed, when the cervix is perforated on the mesio-buccal surface one-sixteenth of an inch within the gingival border through to the floor of the pulp-chamber; the cavity being prepared, a disk of lead properly adapted is placed on the cavity-floor to prevent obstruction to the vent which the perforation affords; then filling completes the work. Thus treated, the organ of resorption performs its natural function without interruption, and childhood is dentally blessed to the limit of nature's plan. In the treatment of pulpitis in permanent teeth, where extreme inflammation prevails, rhizodontropy can be employed to great advantage over the method of drilling through the crowns or fillings, as with it the minimum of vibration results.

DISCUSSION: Dr. J. Taft. The operation consisted in simply perforating the root of a tooth into its pulp-chamber, wounding the pulp, thereby depleting it and causing its contraction. Although teeth having pulps exposed by decay were treated in this way, in a great many instances with decided success, the results were more promising where the pulp was exposed by excavation, where it was well nigh exposed, but covered with a thin line of undecayed dentine. In these last cases, where the introduction of a filling would be likely to be attended with unfavorable results, Dr. Hullihen claimed that by the adoption of this method, in almost every instance, the pulp would be saved in a state of, to say the least, comparative health and vitality.

Dr. W. C. Barrett. We know that you cannot penetrate the pulp with a dental drill, or spear, or anything of that kind, without the most serious consequences, and the performance of this operation can be nothing more than the opening of a vent-hole; it simply furnishes drainage. We know that, according to our pathological laws, there cannot under ordinary circumstances be any such thing as the recovery of a pulp after it has been pierced by a drill at the gum-margin.

Drs. Louis Ottofy and H. J. McKellops thought that there was no need to revive this operation, inasmuch as it could hardly be successful, and there were many methods preferable to it.

Dr. Brown. I was talking of the treatment of deciduous teeth, after the pulps are removed and the canals cleansed, and had no reference to perforating teeth that had pulps, dead or alive. I have resorted to this for years with decided success. The deciduous teeth are saved and there is no inflammation in the root; the child can masticate, the roots are absorbed, and the teeth thrown off at the proper time.

"THE RELATION OF ADENOID VEGETATION TO IRREGULARITIES OF THE TEETH AND ASSOCIATE PARTS," by Dr. G. F. Eames, Boston; read before the American Medical Association at Baltimore, May, 1895. (1) While mouth-breathing is usually attendant upon adenoid growths, this is not always the case; while, on the other hand, mouth-breathing may exist without the presence of adenoids, or it may be due to a chronic hypertrophy of the turbinated bodies, or some septal deformity. (2) The adenoid growth rarely

fills the pharyngeal space so as to obstruct breathing, but mouth-breathing *results* from the irritation which it produces. (3) Mouth-breathing does not produce adenoid vegetations. (4) Mouth-breathing does not cause irregularities of the teeth. (5) Many cases present deformed arches and irregular teeth in which no adenoids existed.

It is argued by G. MacDonald that nasal stenosis is a constant factor in post-nasal growths, and that this being the case, "as long as respiration is conducted through the nose, there is, of a physical necessity, a diminution in the barometric pressure behind the seat of stenosis. This inevitably results in more or less overfilling of the blood-vessels, which, in its turn, leads to hypernutrition and hypertrophy." It is obvious that, when the diaphragm is depressed, the mouth closed, and the nose partially closed, there is more or less suction produced which would invite blood in extra amounts to the pharyngeal region, but, according to my observations, patients breathe through the mouth, both by instinct and force of habit, even when it is possible to breath through the nose. The swollen turbinates, with their rich supply of nerves, readily convey a sense of suffocation to the brain, and the mouth is immediately opened. Moreover, the mouth opens so readily, upon so little provocation from the nasal irritation and stenosis, that it does not seem possible that sufficient "diminution of the barometric pressure" can be produced in the pharyngeal vault to cause a growth of tissue. Again, if this be true, we ask why the growths are so often pedunculated while the pressure is exerted equally in all directions. This view also necessitates nasal stenosis to begin with; but it is generally understood that the enlarged turbinates are the *result*, not the *cause*, of adenoids, and observation shows that the nasal obstruction gradually disappears after the removal of the growth. Again, this will not account for the congenital growths, and those in infants whose oral respiration has been established only a few weeks or months; and still again, those cases of nasal stenosis of long standing in which there is no adenoid hypertrophy.

It has been said that adenoid growths in the pharyngeal vault cause irregularities of the teeth. I do not believe this to be the case, but rather that the dental irregularities are only another expression of the same cause that operates to produce the adenoid

growth; in other words, there is one cause common to both, yet this cause may not be able in all cases to produce both. The bone-developing vital movement may be strong and active by inheritance, while the lymphatic glandular system is weak.

It has been stated that mouth-breathing necessitates a constant dropping of the lower jaw, which, in so doing, causes pressure of the masseter and other muscles upon the buccal surfaces of the upper teeth and consequent flattening of the lateral alveolar arches, and the projecting forward of the cuspids and incisors. I cannot believe that the dropping of the lower jaw produces pressure on the teeth in the superior maxilla. The lower jaw is approximated to the upper teeth principally by the masseter, temporal, and internal pterygoid muscles, and when the jaw drops by the relaxation of these muscles, and with it other muscles and tissues of the face, unless the mouth be opened to the fullest extent by action of the platysma myoides, digastric and other muscles, the tissues of the cheek are not put upon the stretch; in fact, the finger can be easily passed in between the teeth and jaw, without being sensible of any pressure upon it, provided the mouth is not opened widely. Moreover, it seems reasonable to conclude that the jaw is held suspended, not by the cheeks, but by the masseter and accessory muscles. The cheeks cover the jaws and the teeth loosely, with tissue to spare, and will, as a rule, admit of the jaws being opened to a considerable extent without separating the lips or stretching the cheeks, which is the case during sleep; therefore when the lower jaw relaxes sufficiently to let the air in through the mouth, it cannot put the tissues of the cheeks on the stretch, or draw them tightly against the teeth. Both observation and experiment will show that it is only necessary to open the lips slightly, in order to allow sufficient air to pass in by the mouth, and that all the tissues and muscles concerned are *in a relaxed and flabby condition while mouth-breathing is going on*.

Bazin is quoted as advancing the idea that the weight of the tongue in the floor of the mouth would tend to expand the lower jaw beyond its normal limits. I would suggest, however, that if weight is the expanding force, how can it press laterally, since gravity would carry the tongue downward into the floor of the mouth, which would rather draw the sides of the jaw together.

But if it be the muscular force of the tongue, then it is easier to see how the teeth might be pushed outward.

Dr. Henri Chatterlier, of Paris, calls attention to the bones of the head and face consequent upon obstructed nasal respiration. He points out that the air-cavities, as the frontal, sphenoidal, ethmoidal, and maxillary sinuses, being normally in communication with the air, cease to develop when the circulation of air through the nose is interfered with, and hence dimensions of the face are altered. Dr. E. S. Talbot says, "There are many cases of contracted arches where mouth-breathing does not exist; there are also many cases of normal arches where it is present." I firmly believe that this statement is entirely correct. Marked adenoid growths are sure to produce mouth-breathing and more or less nasal stenosis; but irregularities of the teeth and deformities of the arch are not at all certain to follow as a consequence, but are rather companions, due to a common cause. Dr. Talbot further says that in most cases the cause of these deformities is an arrest of development of the bones of the nose, and this produces mouth-breathing. While this may be so, I would call attention to the fact that the opposite condition exists as to the turbinated bodies, which are hypertrophied.

In 1879, Prof. Harrison Allen said, "Inasmuch as the face is the result of the lateral visceral half-arches joining the median structures, projected from the front of the brain-case, it follows that if there is want of harmony between the two genetic movements, errors of symmetry will readily occur." Explanation may thus be given of symmetry of the nasal chambers, the external nose, the two halves of either of the dental arches, entirely apart from the acquired defects in the same localities. Applying this hypothesis to practice, Dr. Allen had recognized a well-defined group of cases in which the nasal chambers remained, from birth, partially or entirely occluded. Also, that in cases of obstinate nasal catarrh in children from seven to eighteen years of age, in whom the upper permanent incisors were overlapping and convergent, the two halves of the upper dental arch more or less V-shaped, the tonsils tumid, the roof of the mouth with a high, narrow vault, the cause was deep-lying and congenital, and affected all the structures of the face. Dr. Allen has frequently noted the way in which the dental arch was narrowed and elevated in adults, in

whom no history of either adenoid disease or nasal obstruction was given. It should be noticed also that the upper incisors approach the vertical position, sometimes overlapping, in many cases of adenoid disease, while in thumb-suckers these teeth protrude from the mouth.

"DISEASES OF THE SOFT PARTS OF THE MOUTH AND ILL-DEVELOPED JAWS," by Dr. W. S. Twilley, Baltimore, Md.; read before the same society. One cause of irregularity of the teeth is the resistance offered to the prurption of the permanent teeth by the temporary ones. Another frequent cause is a want of simultaneous action between the increase of the permanent teeth and decrease of the temporary ones by the absorption of the roots of the latter. When the permanent teeth are large and the growth of the jaws does not proceed proportionately, the teeth are found to crowd and overlap. By the premature extraction of the temporary teeth the jaws are liable to contraction; and when the permanent successors appear, there not being sufficient room in the arches, they will crowd and overlap. Frequently for the want of space, one or more of the permanent teeth will not appear until late in life, and then only when room has been made by the extraction of one or more of the permanent teeth. In some cases they never appear at all. The protruding lower jaw is at times produced by children sticking out their chins to "look funny," as they style it. This is done in their play, and finally becomes a habit, producing a deformity, although this deformity is more frequently produced by the injudicious extraction of some of the upper teeth without taking care to secure a due proportion between the upper and lower jaws. Again, where the upper incisors extending inward come in contact with the lower centrals on closing the jaws, the child finds it easier and more comfortable to throw the lower jaw forward. This finally becomes habitual, and promotes the increase in the length of the lower jaw itself. The almost universal acceptance of the theory that the premature extraction of the deciduous teeth or the extraction of the permanent ones are the only causes of irregularities, is a great error in the opinion of the essayist. The prolonged use of the "fraud" and the greater evil of thumb-sucking are to be regarded as more serious causes of deformity. Enlargement of the tonsils and

hypertrophies of the nasal chambers interfere with proper respiration. As a result, respiration is carried on more or less through the mouth, which results in a slight contraction of the muscles about the nose and mouth, which helps to increase the deformity of the oral arch.

The nasal septum being rarely perpendicular, is deflected to the one side or the other. Only in skulls with the flat or normal palate is the nasal septum most apt to be perpendicular, but in those having the inverted V-shaped palate either the septum must be greatly deflected or pressure upon the vomer will push the perpendicular plate of the ethmoid bone forward, thus causing that external protrusion characteristic of the Roman nose. The cause of this abnormal formation of one of these structures *pari passu* with that of the other is ascribed by Professor Allen to "an inflammatory condition of the walls of the oro-naso-pharyngeal space, this producing tension of the muscles, thus pressing the lateral portions inward, contracting this space, thereby deforming the roof of the mouth and changing the natural dome shape to the inverted V-shape." It is therefore important that we recognize and early in life guard against the evil results of the inflammation of the antrum and throat in children, troubles generally described as catarrh and tonsilitis.

"CALCIFICATION OF THE TEETH," by Dr. R. R. Andrews, Cambridge, Mass.; read before the same society. Calcification is a process by which organic tissues become hardened by a deposition of salts of lime within their substance. In the intercellular tissue and in the substance of the cells themselves these salts are deposited by the rich blood-supply always near. They are deposited in minute particles, and in such fine sub-divisions that it makes it difficult to demonstrate many of them, even with the higher powers of the microscope. The intercellular substance, either a protoplasmic or gelatinous fluid or semi-fluid, contains the lime particles. In it they change their chemical nature, uniting with the organic substance of the part, and form small globular bodies, which have been called calcospherites; and these, blending or coalescing into a mass, form a substance called calco-globulin. This, which is a lifeless matter, has been deposited through the cells into a gelatinous substance, and in some cases into the sub-

stance of the cells themselves, where, by a further hardening process, it becomes the fully-calcified matrix.

Mr. Rainey, Prof. Harting and Dr. Ord say, "If a soluble salt of lime be slowly mixed with another solution capable of precipitating the lime, the resultant lime-salt will go down as an amorphous powder and sometimes as minute crystals. But when the lime-salts are precipitated in gelatin or albumen, the character of the lime-salts is materially altered. Instead of a powder, there were found various curious but definite forms, quite unlike the character of crystals or powder, produced without the intervention of the organic substance." Mr. Rainey found that if carbonate of lime be slowly formed in a thick solution of albumen, the resultant salt has changed its character; it is now in the form of globules, laminated like tiny onions. These globules, when brought in contact with one another, become agglomerated into a single laminated mass, it appearing as if the laminae in immediate apposition had blended with one another. The globular masses, at one time of mulberry-like form, lose the individuality of their constituent smaller globules and become smoothed down into a single mass or layer, and Mr. Rainey suggests, as an explanation of the laminated structure, that the smaller masses have accumulated in concentric layers, which subsequently coalesced; and in the substitution of the globular for the amorphous or crystalline forms in the salt of lime, when in contact with organic substances, he claims to find the clue for the explanation of the development of shells, teeth, and bone.

The most important addition to our knowledge made by Prof. Harting lay in the very peculiar constitution of the "calco-spherite," by which name he designated the globular forms seen and described by Rainey. That these are built up of concentric laminae, like an onion, has already been stated, and Mr. Rainey was aware that albumen actually entered into the composition of the globule, since it retained its form even after the application of acid. But Prof. Harting has shown that the albumen left behind after treatment of a calco-spherite with acid is no longer ordinary albumen; it is profoundly modified, and is become exceedingly resistant to the action of acids, alkalies, and boiling water. For this modified albumen he proposes the name calco-globulin, as it appears that the lime is held in some sort of chemical combination,

for the last traces of lime are retained very obstinately when calco-globulin is submitted to the action of acids. It is a very remarkable fact that microscopic glistening specks and globules are constantly seen at the edges of tissue where enamel, cementum, dentine, or bone are to be formed or are forming.

Robin and Magitot have described isolated spherules of lime-salts as occurring abundantly in the young pulps of human teeth, as well as in those of other animals, and Tomes suggests that perhaps all deposits of lime-salts commence in this way. These microscopic, globular bodies have been called calco-spherites, and it appears as though some such process as described by Prof. Harting is transpiring within the substance of the tissues where bone, dentine, or enamel is to be formed. It will be noticed that near this point of formation there is always to be found a rich capillary blood-supply, and from this the lime-salts are given out. As I have said, near the forming matrix the tissue is seen to be full of these microscopic, glistening bodies,—the minute atoms which are often spoken of as granules. The abundant appearance of these globules at the time of the formation of the enamel, and their entire absence at earlier stages, is to me an indication that the globules are an enamel-substance, the matrix-forming calco-spherites; and following up their future confirms this. Many of them are so small as to be scarcely measurable: they are almost always spherical. The lower part of the cell toward the dentine contains the larger globules.

The growth of the enamel-rod, once begun, takes place by additions of these globules. I am convinced that the larger ones are composed of hundreds of the smaller ones, which have coalesced into the main mass. When enamel is commencing its process of calcification, if we examine carefully with high powers a tissue that has been properly prepared, so that there shall be the smallest amount of shrinkage, we shall find, in that slight amount of the enamel-organ that is directly over the calcified point of dentine, in what remains of the stellate reticulum and in the stratum intermedium principally, a very large number of glistening points. Most of these are minute,—microscopic, in fact. They are the forming calco-spherites, or, rather, they are the minute particles of lime from the blood-supply, changing their chemical nature as they pass into the protoplasmic juices of the part. These

appear to be passing into the formative cells, and these cells superintend their formation into enamel-rods,—that is, they are laid from the cell against the forming rod. Within the substance of the ameloblasts they are seen to be growing larger by the smaller ones coalescing with others. If at this point of their development the layer of enamel-cells is pulled away from the cap of formed dentine, we shall see that the cap of dentine is everywhere covered with quite regularly formed globular bodies. If, on the other hand, the layer of enamel-cells is against the formed cap of dentine, the masses are assuming block-like forms, as though taking the form of the future enamel-rod. They appear to be in a gelatinous substance which is between the dentine and the enamel-cells, and here, by an unknown chemical hardening process, they become the hardened columns of the enamel.

In dentine the calcifying process goes on in much the same manner. The odontoblasts are merely masses of protoplasm, and appear to have no membrane; as is the case with the ameloblast, it has a nucleus at a point farthest from the calcifying matrix. In forming the dentine matrix, the odontoblast, or the pulp-tissue through the odontoblast, gives out a rich gelatinous substance about as wide as the layer of odontoblast-cells. Everywhere between the odontoblasts, as Mummery has demonstrated, is found a rich supply of connective-tissue cells, whose function appears to be the forming of a net-work of connective-tissue fibres into this gelatinous substance, this net-work seeming to be a scaffolding upon which the calco-spherites, which are to form calco-globulin, are to be deposited. Into this layer the odontoblasts are also superintending the placing of the minute globules which are within them, and which have been given to them by the rich blood-supply found everywhere near their pulp-ends. Into the gelatinous substance the globules form against the calcified matrix, where, fusing with others, they form a mass, entirely filling the gelatinous substance. This gelatinous substance, with its mass of globules, now becomes calco-globulin. By some natural hardening process it then becomes calcified matrix, and thus another layer of calcified matrix is formed.

We must remember that it takes a large number of sections to show these various stages of growth. Each section shows the picture at the point where death of the part has left it, another

section will show another stage, and so on. In one section we shall see the odontoblasts against the gelatinous layer, with the globules within it. Another section will show an entire absence of the gelatinous layer, with pear-shaped cells a little away from the calcified matrix, and with portions of cells clinging to the calcified matrix, found here and there, that look like odontoblasts. Another section will show the globular masses filling up the gelatinous layer just before a new layer of calcified matrix is formed.

I am convinced that the calcifying process is much the same in the cementum. The first cemental calcification takes place by the cementoblasts giving off these globular bodies near the neck of the tooth against the forming dentine of the root into a gelatinous substance, this also being given off by the cells. It assumes the form of plates or scales. Afterward the cells themselves appear to fill with the globules, and lose their identity in the forming matrix. That peculiar tissue which we call "tissue on the borderland of calcification," is composed of globular, glistening bodies which have coalesced and formed a layer within a gelatinous substance previously given out by the formative cells. In this condition it is a tissue indestructible both in acids and in caustic alkalies, and only in this condition is it true caloglobulin.

In a recent work entitled "The Anatomy and Pathology of the Teeth," in a chapter describing "The Calcification of the Enamel," the author and his associates make some, to me, erroneous statements. They say, "The more we turn to the center of the cup (enamel-organ) the more shall we be struck by the presence of glistening, homogeneous lumps in the epithelia, until we have reached the center of the cup, where we observe that epithelium has been transformed into a number of such lumps in a regular arrangement, which reminds us of their origin from previous epithelia. The original epithelia (enamel-cells) gradually become enlarged, and are at last split up into a number of medullary corpuscles." Again, "Medullary tissue develops into connective tissue of a decidedly fibrous character." Again: "There is good reason for the assumption that the medullary tissues sprung from the previous external epithelium (of enamel-organ) is the source for the completion of such enamel as we observe

upon temporary teeth when they emerge from their sockets." And again: "If we examine the lower edge of the cup of the enamel-organ at about the sixteenth week of embryonal life, we observe a peculiar change in the columnar bodies of the internal epithelium, which consists in the appearance in a more or less row-like arrangement, of highly glistening globular bodies, replacing the previous columnar epithelia. These bodies are either solid or slightly vacuolated, and are formations of living matter such as we are accustomed to look upon as medullary, embryonal, or indifferent corpuscles, in their earliest stages of appearance. Obviously, these glistening globules have originated from the reticulum of living matter of the columnar epithelia (enamel-cells) themselves. We feel justified in this conclusion from the fact that we can trace step by step the growth of these glistening granules up to the formation of glistening lumps such as we have termed medullary corpuscles. . . . The lumps, I wish to repeat, are extremely glossy, with a high degree of refraction. They are arranged at first irregularly in a layer of considerable breadth, and higher up in rows, and by their coalescence and prolongation give rise to small columns, the ameloblasts. . . . These (medullary) corpuscles of the liquids contained in their reticulum become solidified into basis-substance and immediately infiltrated with lime-salts. . . . The enamel-rods are built up of such calcified or petrified medullary corpuscles."

These observations in regard to the calcification of the dentine endeavor to show that the odontoblasts are split up at their distal ends into these glistening bodies, which they call medullary corpuscles. "These medullary corpuscles are lumps of protoplasm, in which living matter is stored up in different shapes, the glistening globules of small size having arisen from protoplasm, and that these represent a juvenile condition of living matter in its most compact aggregation, which enter directly into the formation of the basis-substance of dentine, while at the same time, continually superadded to the proximal ends of the odontoblasts, are medullary corpuscles derived from the living matter of the papilla. Thus the continuity of the odontoblasts in dentine is established." They assert a similar proceeding from the ameloblasts, in a reverse direction. Thus, "the ameloblasts being broken up at their proximal (dentine) ends into medullary corpuscles

which are directly transformed into blocks of enamel-rods, are superadded to their distal or peripheral ends by medullary corpuscles derived from the stratum intermedium." . . . "The indifferent corpuscles, serving to supply additions to the ameloblasts, exhibit all intermediate stages between small, globular, glossy, and compact nucleated, protoplasmic lumps." . . . "Nothing but a transmutation of solid, globular lumps of living matter in delicately reticulated medullary corpuscles seems to be required for the building up of the minute blocks of the enamel-rods without the intermediate stage of ameloblasts. . . . The first appearing enamel is made up of irregular, angular, glistening lumps, greatly varying in size."

No one can be more clearly aware of the patient and persistent effort, and of the immense amount of labor and earnest research which the author has given to his work than myself, and great credit from his profession is due to Dr. Bodecker for this labor. I am not in accord with his views as to calcification of the dental tissues, and to some of us "the reticulum" and the "medullary corpuscles" are bugbears. To the earnest investigator, who did not know the author, it would seem from the description of the calcifying processes as if a tissue had been built up to fit a theory. So far as I am aware, photo-micrographs of these tissues, as described in this chapter on calcification, have never been shown. There is no absolute evidence to prove the correctness of the assertions.

These peculiar theories on the calcifying processes cause a very considerable amount of doubt in the mind of any one who has given this subject attention in the way of original investigation. The theories advanced clash strangely with facts. The glistening bodies seen in the epithelial layers of the enamel-organ are but lifeless lime globules, and do not have their origin in a reticulum of living matter in these epithelial layers. Their origin, as I have stated, is more probably from the blood-supply which is everywhere abundant near these layers. It is speculating in a very lively manner to assert that the cells in the enamel-layers split up into a number of medullary corpuscles of a fibrous character and then become formations of living matter, and it is wholly a hypothetical statement to make when they say that these glistening bodies, by coalescing and prolongation, give birth to the ameloblasts.

blasts. Their lumps of living matter, which they call medullary corpuscles, are but glistening masses of lifeless matter, known to be calco-globulin. They are not medullary corpuscles; they do not arise from protoplasm; they are not "a juvenile condition of living matter in its most compact aggregation." I wish to repeat: These so-called glistening medullary corpuscles represented in their illustrations are nothing more or less than lifeless lime-globules.

"BACTERIA OF THE MOUTH," by Dr. Wm. H. Welsh, of John Hopkins University; read at the Union Convention of the Washington City Dental Society and the Maryland State Dental Ass'n. To study the micro-organisms of the mouth, it is necessary to scrape from the mucous membrane or from about the teeth the secretions in which they will always be found, though much more numerous in mouths that are not carefully kept clean. Pure cultures of such of the bacteria of the mouth as will exist upon what are called culture-media are made by inoculating the medium with the sputa. After a reasonable time, upon examination, the culture-material will be found covered with colonies of the different bacteria, and by inoculating new plates of culture-material from these colonies we get what are called pure cultures, that is, plates containing only one species of bacteria each. The colonies appear as whitish or grayish-white spots.

A very interesting point is the discrepancy between microscopical examination of the sputa and of cultures. The sputa contains many varieties of micro-organisms that are incapable of growth on our culture-materials. No other mucous membrane harbors so great a number or so many varieties of bacteria as the buccal; as this orifice is the main channel for all that enters the body, many varieties of micro-organisms are introduced, most of which tarry there but a short time, as they cannot assimilate the nutriment found there. Some, however, survive a long time, and there are others which have their natural home there and are not to be found elsewhere. We speak of these as the constant inhabitants of the mouth. The most important of these are the *Leptothrix buccalis* and the two species of spirilli. These are found invariably, and, as far as we know, they are harmless. A possible exception may be the *leptothrix*. It is found regularly in carious

teeth, in abscesses in the mouth, and in various forms of tonsillitis, but that it is capable of setting up any of these diseases is more than doubtful. They are all incapable of growth in culture-media. In the sputa, they are shown by the microscope. Bacteriologists state that they have cultivated them, but this has not been satisfactorily proven. The secretions and conditions of the mouth are exceedingly favorable to the growth of many species, but to some they seem to possess bacteriacidal properties. We have not, as yet, any very satisfactory demonstration of the reason for the disappearance of some species of bacteria which are frequently found in the mouth. Bacteria do not penetrate the saliva-ducts or glands, nor, though present in the intestines, do they ever penetrate the bile-ducts to the liver.

One of the most important of the bacteria which cause diseases is the pneumococcus. This is always present in certain diseases, and is found sometimes in a virulent state and sometimes in a non-active state where there is no disease. In a virulent form, it is perhaps in one in about four or five healthy mouths. It will cause death if injected into a healthy rabbit, and pure cultures of it will be found in the blood of the rabbit. It is this particular organism which has caused the belief of the toxicity of the human saliva. It is probably found in all mouths in a non-virulent form, and special conditions of the mouth may favor a change from the non-virulent to the virulent state. This pneumococcus is always found in, and is supposed to be a cause of, croupous pneumonia and cerebro-spinal meningitis, though there must be special conditions to cause death or disease from its action or presence.

A second micro-organism is the streptococcus pyogenes, a spherical bacteria growing in chains like pearls on a string. These are found, I think, in all mouths, or at least in a very large proportion. Inflammations of the throat and tonsils, pseudo-membranous forms of disease, pleurisy, erysipelas, cellulitis, and such types of inflammation are due to its action, and I believe it is especially concerned in caries of the teeth. The cause of caries has not been certainly and definitely settled, but these bacteria apparently are concerned. It has to do, also, in inflammations around the teeth. There are other pyogenic bacteria in such inflammations, but these are always present. They, too, are found

in virulent and non-virulent states. Their virulence is determined by the test of inoculation into animals.

The tonsils are particularly vulnerable points to attack of bacteria, especially in unhealthy conditions of the mouth, and in septicemia and blood-poisoning. In diseases such as scarlet fever the bacteria invade the whole system. The oral pyogenic staphylococci are not constant inhabitants of the mouth; they are universally diffused, produce boils and inflammations of external parts, and are what the surgeon guards against with his antiseptic precautions. Many other species of bacteria are less important; the variety found in abscesses communicating with the mouth is astonishing. Some disease-producing bacteria are found in the mouths of healthy persons; for instance, the diphtheria bacillus is found to inhabit healthy mouths without the person suffering from the disease, though whether such person is incapable of transmitting the disease to another whose system is in a favorable state for receiving it is a question as yet unsettled. The tubercular bacillus may also be found in the secretions of the upper air passages. It has been discovered by Strauss in the nasal secretions of nurses and students, all of whom were healthy. This proves that it depends upon predisposition in the individual to become dangerous.

Bacteria closed up in teeth that are filled will probably do no harm, and, indeed, metallic fillings are antiseptic. As Dr. Miller has shown, pure gold, zinc, and tin are antiseptic. This can be and has been proven by inoculating plates with different kinds of bacteria, and placing the metals to be tested on the surface of the media. In twenty-four hours there will be colonies of bacteria covering the culture-media, except in the neighborhood of the metals, around which will be zones of varying width, in which no bacteria have developed. The antiseptic action is due to salts of the different metals which have been formed. Gold is less, and silver is more antiseptic than any other metal thus tested; the latter will generally be surrounded by an aseptic zone of a half-inch in width.

The Ohio Dental Journal for August, 1895.

"ALVEOLAR DENTAL HEMORRHAGES," by Otto Arnold, D. D. S., Columbus, O.; read before the Tri-State Meeting, at Detroit, June, 1895. The exciting cause of hemorrhages under considera-

tion must necessarily and primarily be traumatic. The trauma may be simple or complex: a simple bony socket with its connective tissue unbroken, scarcely disturbing the capillaries sufficiently to excite a flow of blood, or there may be more or less laceration of the tissues with fracture of its socket walls or deeper part of its maxilla, involving larger vessels, complications that materially influence the degree of hemorrhage in the ordinary or normal conditions of the system. Besides the trauma, there may exist a predisposing cause,—the condition known as the hemorrhagic diathesis, classified by some authors as a disease of the blood, technically termed hæmophilia, the patient being designated a “bleeder.” Most cases of hæmophilia are traceable to heredity, although it may originate spontaneously. It is more common in males than in females, the proportion being 12 to 1. Structural weakness in the vessels, and deficiency in the coagulating element in the blood are the conditions that seem to account for this disease. In statistics of fatal cases of hemorrhage from various trivial surgical operations, tooth-extraction is given as the cause of the greatest number, which should be a standing menace to the dentist against carelessness in operations.

In persistent bleeding from external surfaces, I condemn the use of persulphate of iron as unreliable and treacherous. This agent forms a clot quickly, but it is usually too frail in structure to withstand the *vis a tergo* of the blood-current, and soon breaks away and secondary bleeding follows. Forcibly plugging the bleeding socket with wood, cotton, wax, etc., to mechanically stop the flow, is too violent a procedure, often doing more harm by expanding or distending the socket and its environment, thereby increasing the provocation.

As a local astringent, tannic acid, either in powder or saturated aqueous solution, for direct application to the bleeding parts, is very efficient and safe, and, in ordinary cases, will not fail. A simple method of application is to introduce a quantity of dry tannin into the bleeding socket and follow with a pledget of dry cotton, gently placed but filling the cavity snugly, the subsequent expansion of the cotton as it becomes moist securing its retention. If arterial hemorrhage exists, and torsion or ligation is impracticable, apply a batter of plaster-paris, enveloping the parts as in taking an impression; the hardened mass to be left *in situ* until all

chance of recurrence of bleeding is removed. To allay mental excitement and diminish the frequency of the pulse-beats, drachm doses of fluid ext. of ergot may be given every three hours.

Positive or pathognomonic signs may be entirely absent in constitutional bleeders, so it is not possible to be always forewarned, but if the existence of the hemorrhagic diathesis is suspected, every possible protective measure should be adopted. Patients should always rinse the mouth freely with hot water after tooth extraction, as it encourages free and uninterrupted bleeding from the wound, and stimulates a normal reaction in the tissues, soon followed by a natural cessation of the hemorrhage. If there is much laceration, I try to replace the tissues by compressing with the fingers or stitching into apposition any pendant portion of the gum, prescribing as a dressing, to be frequently applied: Tannic acid—gr. 20; listerine—oz. 4; aqua dist.—oz. 4. If the patient is known to be a bleeder, or if the bleeding be prolonged indefinitely, immediately prescribe gallic acid in ten-grain doses, to be taken into the stomach every hour until bleeding is arrested. This is an excellent prescription: gallic acid—1 drachm; aqua cinnamon—4 drachms; a tablespoonful hourly until hemorrhage ceases. Gallic acid possesses superior properties as an internal astringent and does not induce constipation, and in addition, has the property of increasing the coagulable properties in the blood, as I have observed the greater facility with which a clot is formed after the agent is administered. I have never seen a case of alveolar dental hemorrhage that was not arrested after the taking of from one to three ten-grain doses of gallic acid.

"HABIT SPASMS," by Dr. E. T. Loeffler, Saginaw, Mich., read before the same society. This really belongs to a class of diseases in which there are no constant changes to be seen with the naked eye. Formerly they were all included under "functional diseases," but microscopical changes have been discovered in some of them with sufficient frequency to make it certain that there is far more than a mere disturbance of function, and doubtless most of these maladies depend upon alterations in the nutrition of the nerve element, although these may not yet have been found, and perhaps cannot as yet be detected. Persons present spasmodic movements, such as winking, twitching the mouth,

jerking the head, movements that have a half-voluntary aspect, but which the individuals are unable to control. The condition is met with chiefly in childhood, especially in second half, but it sometimes commences in youth, and even in adult life. In young women it is often associated with symptoms of hysteria, and it may be difficult to decide whether certain spasmodic movements are to be regarded as of reflex dental neurosis, of habit spasm, or of hysterical spasm. When it commences in childhood, the affection commonly ceases after a few months, but occasionally goes on to middle life. Rarely it begins late in life and is then generally permanent. In early life it occurs especially in nervous and excitable children, and is said to be more common in females than in males. Some claim that impairment of general health often precedes the development of the movements; occasionally they appear to be due to some special influence depressing the nervous system, over-work, a fright, or some injury. In one case the onset followed a fall into water. There is frequently a history of other neurosis in parents or other relatives. A father had such movements in the face all through his life, and two children likewise presented them. It is quite probable that the affection often arises by imitation, as the witnessing of such movements is apt to produce a peculiar excitability, which finds expression and relief in movements of a similar nature. There are many well marked cases on record in which the cause was due to an irritation reflected from diseased teeth.

Of drugs, arsenic has certainly the most influence to remedy it. Weir Mitchell has known the hypodermic injection of arsenic to succeed when other things failed. Nerve tonics, such as quinine and strychnine, may with advantage be added. If there is much excitability of the brain, or if spasmodic movements are seen, bromide of potassium may be needed, and occasionally a local blister is very efficient. A spasmodically smiling clergyman ceased to be troubled after he had for a few weeks taken some arsenic and iodide of iron, and a dose of bromide each time he had to conduct a service. In recent cases of facial spasm, apparently excited by cold, free diaphoresis should be employed, and the face and side of the head frequently bathed with hot water. If there are indications of organic disease, the nature of this must be ascertained and treated. All causes of reflex irritation must be

sought for and removed; decayed teeth should be extracted, especially if they are on the same side as the spasm. Occasionally such nervine tonics and stimulants as zinc, nitrate of silver, asafoetida and valerian may be given, but in the vast majority of cases they fail conspicuously. Sedatives applied to the skin seldom exert any influence over the spasm. Hypodermic injections of strychnia or of morphia have done good in some cases. In the use of morphia for the relief of spasm it is probably more desirable to inject it in or near the seat of spasm than in the case of its anodyne use; the temple is the most convenient locality. Electricity has been largely used and highly praised, but in nine-tenths of the cases it fails even to relieve. Stretching the facial nerve has lately been adopted in these cases, but with imperfect success.

Discussion: Dr. Oliver, Indianapolis. Habit spasm, as produced by dental irritation, is a peculiar malady usually found affecting the muscles of the face and neck, more common in females than in males. It is more liable to occur at dentition, either at the eruption of the deciduous teeth, during a period of from six months to two years, or at the eruption of the permanent set from five to thirteen years, or at the eruption of the wisdom teeth from eighteen to thirty years. Of course, this reflex neurotic condition may be present from some pathological condition of a tooth at any time of life, but infrequently, and when found are usually caused by such dental irritation as pulp stones, or an extosis, constricting or impinging the nerve fibers, and when the cause is removed, nature will take care of itself. Such cases rarely last long, the involuntary twitching of the muscles ceasing after the peripheral irritation is removed, when the normal centrifugal action takes place almost simultaneously. The so-called teething spasms of babies usually subside after the tooth has forced itself through the alveolus and gum. The cases caused by dental irritation during the eruption of the permanent teeth are the hardest to combat and last the longest. In ninety per cent. of all cases the trouble commences with the eruption of the sixth year molar, and if the child has inherited a choraic tendency from its parents, or if his family history is of a phthisical, scrofulous, rickety, or syphilitic character, the spasm will usually continue intermittently until after the eruption of the second molar, when

there will be a cessation until the wisdom tooth renews the trouble. In these cases arsenic is the most valuable remedy. Fowler's solution can be given after meals, commencing with three drops three times a day, and increasing the dose until ten drops are taken after each meal, provided that nausea, edema of the eyelids, or other toxic effects do not appear. Iron, cod liver oil and quinine may be given in combination with arsenic, if the condition of the patient is anaemic, or if arsenic alone does not satisfy. Probably this disease is worst when produced by an arrest in the eruption of the wisdom teeth, and this is especially true in the cases of young women. Frequently they are dosed and even operated upon for so-called female weakness, when absolutely nothing obtained but choracic spasm perhaps produced by dental or ocular irritation.

Dr. Barrett, Buffalo, suggested the idea of habit spasm being due to nervous force becoming accustomed to flow in some particular direction. The remedy was to use some agent that would cause this force to flow in another direction. This might be accomplished by the use of counter-irritants, scarification, or other means that, by metastasis, would produce a cure.

The Pacific Stomatological Gazette for August, 1895.

"ORTHODONTIA TECHNIC," by H. D. Noble, D. D. S., San Francisco, Cal.; read before the San Francisco Dental Association, August, 1895. This is a term used to express the art or science of constructing regulating appliances. Being associated with a college for the last three years, I have been instructing students in the making of regulating appliances, as follows: I first give them a piece of German silver plate, No. 23 gauge, to roll to 27, and 34 or 35. The 27 is used for making tubing; it is cut into strips about one-quarter of an inch in width; one end is tapered and the sides slightly curled to facilitate its curling while being pulled through the draw-plate. The drawing is repeated until the tubing is reduced to the required size. It is then ready to be cut into proper lengths to solder on bands, making jack-screws, etc. Care should always be taken to have the seam in the tubing next to the band when soldered to a band, to avoid the possibility of its opening when pressure is applied, which it might do if otherwise soldered. For bands the material is rolled to No. 35,

or even 36 gauge, to facilitate the introduction and adjustment of the bands on the tooth or teeth. It requires very little, if any separation of the teeth to get a band of that thickness in position.

There are a number of materials used for making regulating appliances, viz.: platinum, platinum gold-plated, gold, German silver, which is considered a most excellent material for almost any kind of a regulating appliance, but, on account of its tarnishing, it is rarely used in the anterior part of the mouth; here platinum or platinum gold-plated is preferable; ligatures and vulcanite are also used. The students use only German silver, vulcanite and nickel for their dummy work. They are given a piece of wire, No. 13 gauge. This they draw down to 17, unless they can manage to borrow some already drawn, for they don't like such vigorous exercise. The wire is used for jack-screws, drag-screws, bands, burs, etc. They are also instructed to make steel taps and drills. They take an old instrument, draw the temper, then, by holding it between the thumb and fingers of one hand, keep it rolling while it is being filed with the other. This makes the instrument perfectly round, and it is reduced to the proper size. The end is shaped like a drill, and is made just small enough to pass through the hole in the screw-plate in which you want to cut the threads. Part of the instrument is filed square to give sharp cutting corners, the thread is continued for a short distance, encircling the instrument. It is now ready for tempering, which requires considerable skill in getting the right temper in the right place. It should have a spring or blue temper in the shank, and a straw or cutting temper in the threads and drill. It is then ready for use.

Having once learned how, one is enabled to make any size tap and drill, or in fact most any kind of instruments. If at a great distance from a supply store a dentist will undoubtedly find it very convenient and save lots of time if he is able to step into his laboratory and turn out the instruments he is urgently in need of. By the aid of a tap and drill we are able by careful manipulation to cut threads in any material we may wish to make nuts of. A nickel five-cent piece is excellent material for making nuts. The preparation of the nickel is to smooth one side on a corundum wheel, then mark it out in squares a little larger than you wish the nut; then drill holes in the center of the square with

your engine and small drill. Then the drill on the end of your tap will enlarge the hole sufficiently to allow for the cutting of the threads; saw out the little square with a metal saw; then with a little dressing the nut is ready for use. German silver square tubing is also very useful for nuts. This is made by taking No. 23 German silver plate the proper width, pulled through a round draw-plate until the edges meet; then solder the seam and pull through a square draw-plate until reduced to proper size. This can be cut in any lengths desired; where much pressure or strain is required a long nut is more serviceable than a short one.

The Matteson cap is also an excellent article in use to assist in regulating teeth. This is made by taking an impression of the tooth or teeth, making the die and counter in Melotte's metal, and swaging cap to cover coronal or cutting surface of the tooth and passing part way down the sides of the tooth. The cap is especially useful in regulating partially erupted teeth where it is almost impossible to cement bands on. It may also be swaged to cover several teeth to open the bite when necessary.

"METHOD OF SPONGE GRAFTING," by Dr. Gordon White, Nashville, Tenn., read before the Stomatological Club of California, Aug. 13, 1895. In 1885 a prominent lawyer of Mississippi came into my office and said: "I have come to you from a long distance. My dentist tells me that I have got to lose this front tooth." After examining the tooth, which was a right superior lateral, I found that it was nearly denuded of its periodontal tissue or membrane. Fully two-thirds of the root of the tooth, commencing at its end, was entirely denuded; you could feel that slick surface which we are all familiar with when we strike a tooth with no periodontal membrane. After having sterilized my instruments, which I did only with hot water and a little carbolic acid, I made an incision. I then took a Fisher bur and ran down between the central and the lateral; ran my engine quite rapidly and cut it off. However, before doing that I filled the root-canals perfectly. I then took a coarse bur and, having sterilized it, burred out all the devitalized bone; then I took a fine finishing bur, medium sized, and smoothed the end of that root. The patient was only in the city for a few days, and consequently I had only an opportunity of treating it twice before the opera-

tion. First, I washed it out with hot water, as warm as he could bear, and a slight solution of carbolic acid; however, in washing it out previously I used peroxide of hydrogen, and then I washed it out with hot water and carbolic acid. I said to him, "Let me see that again tomorrow." I did not report this case until I had a test of it, so when the patient came back to see me after remaining away two years, I reported it to our State Association.

About that time Dr. Atkinson wrote an article, or rather made a report, as I am doing now, about his having had some success in sponge-grafting in cases of extensive pyorrheal trouble. That summer I took a run up to New York to see him. That was two years after I had performed the first operation. I spent an evening with him and told him what I had been doing in that line, and that I had seen he had been doing some work in sponge-grafting. He said he had. I asked him why it could not be used for filling the cavities in the bone after having removed the ends of the root. He said, "I did it once and was very successful, and should think it would work very well." I got all the points I could from him—which he very generously gave—returned home, and a few days after that I had a case similar to the one just recited. I performed the operation in the same way, and after having done that I used the sponge. I prepared my sponge pretty much according to his suggestions. I steeped it in warm water in which I had as much as a couple of grains of bichloride of mercury; I kept it at a temperature of about 164 degrees, if I remember correctly. I then sterilized my hands and my scissors, and trimmed the sponge very much in the shape of a pear, so as to fit the cavity approximately well, and, having squeezed out all of the bichloride, I then inserted it in the cavity and permitted the end of it to protrude from the wound. In a day or two I had this patient come in and found a little protrusion of the sponge; it had increased in size because I had squeezed out a great deal of the solution in which I had sterilized the sponge. Of course, it took up a great deal of moisture from the wound and protruded a little from the cavity. I took a pair of scissors and clipped it off the margin of the wound; I did that twice. I saw the patient then every few days, and would wash it with sterilized water. I watched it because it was my first sponge case, and I found that within about two weeks the sponge had apparently taken considerable hold, or rather the granulations

had taken hold of the sponge, and in about a month the only sign of the operation was a little red spot as big as an ordinary pin-head. It gave him no trouble, no pain whatever after the operation, and there is scarcely any sign of the operation and very little depression. Granulations took place and built and built until the sponge was obliterated. I have performed the operation many times, and have not yet recorded a single failure, though I have a couple which I think will fail. I think if you once cure a chronic abscess by means of this operation you will use no other, as it is an operation which will give great satisfaction. I want to say, however, that I do not use quite such a strong solution of bichloride. I think it creates too much irritation, its cauterizing effect is very great, and so I don't use it quite so strong. I am now using only one grain. I also use the very finest surgical, or silk, sponges—those little soft sponges. The coarse sponge is not good to use.

The Dental Register for August, 1895.

"TUMORS OF THE MOUTH," by Dr. C. G. Darling, M. D., Univ. of Mich.; read before the Mississippi Valley Dental Society, April 18, 1895. Tumors small and benign give neither the patient nor the dentist much concern, being early submitted for treatment and usually brought to a successful termination. The malignant varieties, however, come insiduously, giving no hint of their true character until they are decidedly present, appropriating space and tissue to their own use, they soon become a source of danger and discomfort to the patient, and should be checked at once. Fortunately the risk to life in operations about the face and mouth is slight when compared with operations of the same magnitude in other parts of the body. No life-sustaining organs are involved. Shock is not great, and sepsis is so slight in wounds of this locality that it seldom proves fatal. Therefore, nearly all operations about the face are a success so far as recovering from the effects of the operation and the repair in tissue may be concerned. Even those failures made so by a return of the disease are not without good results, and I will attempt to show by some cases that even the unpromising and rapidly developing tumors may be removed, prolonging the life of the patient and giving comfort in his last days.

E. L., a man thirty-three years of age, entered the University Hospital in March, 1891, and gave the following history: In July of 1890 he had noticed a small growth of the inferior border of the lower jaw which corresponded to the position of the first molar tooth. Early in October two teeth were extracted (whether by physician or dentist, I do not know), under the impression that at the roots of these would be found the cause of the trouble and that it could be easily removed, but, instead of improvement there sprung up from the alveolar process a mass which rapidly increased in size until nearly all of the right half of the lower jaw was involved. The growth soon began to break down, while the discharges and sloughs from this suppurating mass were not entirely expelled but portions were swallowed and taken into the lungs, causing a rapid decline in the patient's health. The diagnosis of rapidly growing sarcoma was made, and on March 30, 1892, the first operation was made; removing a little more than half of the lower jaw. The parts healed promptly and in three weeks the patient left the hospital apparently cured. Three weeks later, however, he returned with the disease well advanced in the remaining portion of the jaw. This was promptly removed together with the floor of the mouth well down to the base of the tongue. June 10, 1892, he again returned to his home and no change for the worse was noticed for two months, when nodules began to develop on the right side near the old scar. These continued to increase in size and join together until quite a bulky tumor was formed. For the third time he came to the hospital; again it was decided that operation might give relief, although the tumor now extended well up toward the temporal region involving nearly all branches of the facial nerve and reaching downward along the carotid vessels. After a tedious and dangerous dissection which lasted more than two hours the growth was successfully removed. Again the patient made a good recovery and died about two years later from the effects of sarcoma in the lungs and kidneys. During this time he was remarkably free from pain and seemed to enjoy life. No great deformity was caused by this extensive operation and he could speak nearly as distinctly as before, though the entire lower jaw and the floor of the mouth were removed.

Here is another case illustrating the proper method of operat-

ing for carcinoma when the surgeon sees his case early. Mr. W. H., farmer, has been a moderate drinker, enjoying good health. Three weeks ago he first noticed a small growth on the under surface of the right side of his tongue, it was closely connected with the surrounding tissue, growing rapidly and painlessly. A small portion was excised under cocaine anæsthesia and submitted to microscopical examination. October 17, 1894, he was operated upon in Prof. Nancrede's clinic, one-half of the tongue being removed well back to the base. Rather a heroic operation for a small growth of three weeks duration you may say, but here is the pathologist's report: "I have made sections of the growth from the tongue already reported as epithelioma, and as far as I can see you have gone well outside of the disease." This extensive operation was the only hope of cure for this man, even then the lymphatic glands may have been involved, and the return of the disease may be noted at that point while the scar surface remains healthy. Cancer appearing in the mouth can scarcely be mistaken for any other growth, and there is never any difficulty in removing a portion to confirm the diagnosis, then prompt and thorough removal is the only chance for cure. When any lymphatics are found to be suspiciously enlarged, they must also be removed at the same time.

Sarcomatous tumors of the jaw may be removed with a reasonable hope of cure when the growth is central (myeloid sarcoma), if the entire bone to which the disease is confined be removed. Periosteal sarcoma does not promise such good results, because the surrounding tissue may be involved, but these tumors come early in life when the patient is vigorous and will rapidly recover from operations. In all tumors of this class, not only the jaw should be removed to the median line, but the entire periosteum and attachment of muscles must also be taken away, if we operate with any expectation of a cure.

Mechanical devices to take the place of parts removed or to correct deformities following operations for malignant disease should not be applied for some time after complete recovery because of the danger that such irritation might renew the disease. When the cicatrices are well formed or the diseased condition is not malignant nor beyond the bone, this point may be disregarded and the deformity corrected. The use of medicine in the treat-

ment of malignant tumors is not to be considered where operation is possible but may be tried as a last resort. Coley, of New York, has recently reported thirty-five cases treated by injecting the combined toxins of erysipelas and the bacillus prodigiosus. In five of these cases he has reasonable hope of a permanent cure. All of his cases were inoperable and the diagnosis was verified microscopically. The investigations being carried on at the present time concerning the causes and treatment of these tumors certainly promise great results.

The International Dental Journal for August, 1895.

"IMPACTED THIRD MOLARS," by Dr. J. W. Foreman, Asheville N. C. The text-books are still teaching the extraction of the second molars for the relief of trouble caused by the lack of room for the proper eruption of the third molar, especially when it partially erupts in a horizontal position. The last edition of Garretson's "Oral Surgery" says, in discussing this condition, "Such extraction (of the third molar), however, is occasionally among the almost impossible things. A tooth so affected will not infrequently have but a point not larger than the head of a pin erupted. In these cases the best thing to be done is to *take out the adjoining molar.*"

I have never seen a case where this was either necessary or justifiable. It is not necessary because, if the third molar is through the gum at all, with proper appliances it can be brought far enough up to be grasped with the forceps and removed. It is not justifiable because in the vast majority of instances we deprive the patient of a very valuable tooth, the extraction of which is in no degree necessary; and, as a rule, the third molar proves of but little value, tipping forward if not erupted in a horizontal position, thus producing a practical loss of two teeth instead of one. From my observation and experience I can conceive of no case, where the tooth is through the gum at all, or even above the edge of its socket, in which it would be anything but *bad* practice to extract the second molar, except where inflammation is so great that it would be dangerous to delay extraction long enough to bring the offending tooth up within the grasp of the forceps, or the possible case where there might not be strength enough in

the tooth to resist the force necessary to dislodge it. Even where the inflammation is severe it will subside quickly, as a rule, after the appliance for elevating the tooth is in place, as this at once prevents the bruising and irritating of the overlying soft parts, which causes the trouble. When the tooth is far enough erupted to allow a firm hold with the forceps there is seldom need for anything more than to grind or file away the tooth sufficiently to free it from contact with the second molar, or to separate them as for filling, that the tooth may be drawn away from the ramus. Should the tooth present horizontally, or be so imperfectly erupted as to be beyond the reach of the forceps, an apparatus to elevate it is needed.

The appliance used in dealing with the last case is a vulcanite cap to cover the two molars and second bicuspid, with a gold arm bent so as to project over the tooth to be lifted, and as far above it as the upper jaw will permit. The remainder of the apparatus consisted of a gold-wire staple with the ends bent the second time so as to form an enclosed, long link, the ends of which were pinched together into holes drilled in the buccal and lingual sides of the tooth, and a piece of rubber tubing to connect the staple with the projecting arm of the cap.

The idea was first to get the force from a screw, but it was found that the patient could not manage that, and the elastic was substituted. The cap was removed, cleaned, and replaced once a day by the patient. This tooth was placed horizontally, the grinding surface impinging upon the distal root of the second molar; the distal surface, the only part uncovered, less than one-fourth of the circumference of the tooth. The gum had to be cut away on both sides to get low enough down to drill the holes, the discolored part between the holes being all that was exposed. Ten days sufficed to lift the tooth enough to permit fairly easy extraction. A severe otalgia, from which the patient had suffered for weeks, had disappeared almost as soon as the tooth began to move, and, with the exception of a slight attack the day after extraction, has never returned. The difficulties in extracting these teeth are often very great, it is true, but it has never been my misfortune to find them so great as to force me to sacrifice the second molar.

The Dental Review for August, 1895.

"MALOCCLUSION," by W. H. H. Barker, Huron, S. Dak. The function of mastication in man depends upon occlusion. Perfect mastication on perfect occlusion, and perfect occlusion on a perfect denture. What constitutes a perfect denture may be widely interpreted but limited to its office. As a masticatory apparatus there can be but one definition, and that the typical form of nature—thirty-two teeth set in a double arch, one in direct apposition to the other. We say typical form, for this is the correct form where nature has done her perfect work. Seen in its highest state of development, there is no variation from this type, but viewed from the standpoint of actuality, it often varies, and when it does there must ever exist the condition indicated by the caption of this paper.

It is not our intention to define farther the perfect denture, nor enter into the beauty and perfect adaptation of the ends to be subserved, when there is a perfect occlusion of this apparatus, but to note in part some of the evils that exist where its opposite prevails. This we have termed malocclusion, and it sufficiently explains what is meant thereby. In considering this question, we must take the teeth as an aggregation. And yet we cannot eliminate them as units, nor fail to consider them in their individuality to some extent, as each one plays a significant part, and thus contributes to the whole. Passing by the anatomical form of any tooth, or class of teeth, as units, their location in either arch, or their individual adaptation to their special uses, we come to note these facts, viz.: First. That in occlusion no tooth except the inferior central incisor, and the superior dens sapientia, but impinges or rests its morsal surface upon at least two of its fellows in the opposing arch, and second, that each in its own arch, except the dens sapientia, impinges on its mesial and distal surfaces with the same number of its fellows in its own arch. Upon these two facts are based many laws which should never be lost sight of nor ignored in any operation in the oral cavity, so far at least as the teeth are concerned. One of these laws, and the one that perhaps is the least considered, is that of facial expression. There cannot be a perfect face where there is malocclusion. It is evi-

dent that the jaws and teeth make or mar, to a great extent, "the human face divine." If there is a malposition of a single tooth, or even the lack of one, there must follow the want of perfection in the adjacent tissues, both hard and soft, as they are interdependent, and have a lack of symmetry which a perfect type demands. No part of the face is so subject to change as that bounded by the maxillaries. Infancy, youth and old age proclaim these truths to every beholder. They are seen in the undeveloped face of the child. Again, more markedly in the sunken lips and cheeks of the partly edentulous jaws of the adult, and still more so in the advanced in age when the perfectly edentulous jaws causes that markedly wrinkled, shrunk appearance as seen in the near approach of the nose and chin. These are only a few of the ills manifested in facial expression as the result of malocclusion.

Again, as to the voice. How much depends upon occlusion, and how often, very often, does malocclusion interfere and prevent clear, distinct and perfect articulation. How often does the want of impingement of morsal surfaces of the teeth allow a disarrangement of the whole apparatus. Elongation, or protrusion are marked features, and most seriously interfere with the free movements of the lips and tongue, and these in turn interfere with enunciation to such an extent that in many cases the voice is marred beyond recognition and almost beyond redemption. This is a feature that calls loudly for remedy at the hands of the dental surgeon and should be much less ignored than it now often is. It is a physiological law that the full development of an organ and its maintenance in a normal healthy condition is dependent upon its use. Nature allows no drones, physiologically, and hence the work designed for an organ must be performed by it, or it suffers in consequence.

The dental organs are no exception to the rule. They are made for work, and hard work of the most severe and constant kind. That this work may be done rightly, and to its full extent, there must be no break in either arch, and occlusion must be perfect and complete. Malocclusion does not allow of either normality or healthfulness of the teeth, either as a unit, or as an aggregation; work is their life, and antagonism their salvation. In malocclusion, both, to some extent, are wanting, their office abrogated, and they must pay the penalty. Disease readily attacks a

single member of the arch, or the whole of that arch, if not put to service, and the role of nature is to expunge what is of no service in her economy. Among the many cases of malocclusion, may be noted the following: Irregularity, a most fruitful source, happily in a large number of cases, remedial. It is seen in its worst form in a crowded condition, and is the result of a want of correspondence in the size of the teeth and jaws. Then comes the lack of the proper number, and results usually from loss by caries, or extraction after the organ has developed and taken its place in the arch. Next, the wasting of the gums and alveolar processes from mercurial salivation, pyorrhea alveolaris, the impingement of salivary and sanguinary calculus, and other diseases, causing the teeth to change their positions, and to assume new ones, not in keeping with the use for which they were designed, or intended in mastication. Besides these, there are numberless others, such as abrasion, mechanical and chemical, erosion, atrophy, hypertrophy and exostosis, aside from numerous diseases that attack the antrum of Highmore, and the soft tissues covering and adjacent to both maxillaries, as inflammations, abscesses, tumors, and cancerous growths. Traumatic wounds, or mechanical injuries inflicted by accident or caused inadvertently by those who operate on these parts in the oral cavity are also to be noted.

How erudite the mind must be that can see and comprehend the conditions to be met in all these cases. How skillful the hand that can reach forth and apply the needed remedy, or supply the agent that can bring comfort and convenience, healthfulness and beauty, utility and perfection, where all these elements are at war, to mar and despoil. It may not be within the power of the dentist or surgeon to at all times prevent the evils of malocclusion, or remedy them after they once occur, but certainly it is within their power to put forth their hands to stay the deadly work of the forceps, and refuse to mar, where the hand of science might justly step in to build up and repair. It is certainly within their legitimate field to strive to keep intact that which they can never repair, when once the dispoiling hand has done its work. Bearing in mind the ill that follows in the wake of every dental lesion, it should be their aim to conserve and protect, and thus render nugatory, at least to some degree, the dire effects of malocclusion.

The British Journal of Dental Science for August, 1895.

"ORAL SURGERY," by Edmund W. Roughton, B. S., M. D. (Lond.), F. R. C. S., Eng. Fracture of the Mandible. *Causes.* Fracture of the mandible is nearly always the result of considerable direct violence, such as the kick of a horse, a fall from a height, a blow from a fist, etc. Small pieces of the alveolus are often unavoidably broken in extracting teeth, but a complete fracture may occur during extraction by unskilled persons. It is said that fracture has resulted from muscular action, but such an occurrence must be extremely rare.

Varieties. Most fractures of the mandible are compound, because the muco-periosteum covering the bone is torn, thus admitting air from the mouth; when the fracture occurs in a part of the bone not in direct relation with the buccal cavity it is usually simple, unless it results from a penetrating wound or gunshot injury. The fracture may be single, multiple or comminuted.

Situation. The line of fracture may pass through the socket of the canine tooth, the mental foramen, the symphysis, the angle, the ramus, the neck of the condyle or the coronoid process. The commonest situations are the socket of the canine tooth and the mental foramen.

Symptoms—The symptoms of fracture of the mandible are pain, deformity, preternatural mobility, crepitus, loss of function, bleeding from the gums and dribbling of saliva. The pain is usually severe, more so than in most fractures; its severity is due partly to the laceration of the gum and partly to injury to the mandibular nerve; it is increased on masticating, swallowing or speaking and causes the patient to support the injured part with his hands. The deformity is only noticeable on looking inside the mouth; it is due to displacement of the fragments. The smaller or posterior fragment is usually displaced outwards and a little forwards, overlapping the larger or anterior fragment; the displacement is due partly to the direction of the line of fracture which runs as a rule from the inner plate forwards and outwards to the outer plate. When the body of the jaw is fractured on both sides, the displacement is more marked, the loose central fragment being drawn downwards and backwards by the muscles passing to the

hyoid bone. When the fracture is in the ramus there is very little displacement and it does not of course affect the regularity of the teeth. In fracture of the neck of the condyle, the latter is drawn forwards by the external pterygoid muscle and can be felt by the finger introduced into the mouth; the chin is slightly tilted towards the injured side, (the reverse occurs in unilateral dislocation). Preternatural mobility is more apparent the nearer the fracture is to the middle line; it can be both seen and felt; it is most marked when the fracture is double. Crepitus can be detected when the fragments are moved on each other, or by placing the hand over the injured part while the patient opens and closes the mouth. It is of most value as a symptom when the fracture is situated in the ramus or neck of the condyle, because in these cases the other symptoms are more obscure. Loss of function is evidenced by inability to masticate, and by impaired distinction of speech.

Complications—Fracture of the mandible is usually a comparatively trifling injury and is soon repaired, but it may be complicated by the following conditions: (a) *Hæmorrhage*: This is usually slight and derived from the injured gum, but severe bleeding (both primary and secondary) has been known to occur from injury to the inferior dental artery. (b) Wounds of the face are rare except in gunshot injuries. (c) Dislocation of the mandible is extremely rare in cases of fracture. (d) Injury to the teeth: One or more teeth in the vicinity of the fracture are occasionally broken or a tooth may be dislocated from its socket and interposed between the broken ends of the bone, interfering with the process of union. (e) Damage to the mandibular nerve may occur at the time of the accident, or subsequently from the pressure of callus, causing anæsthesia or neuralgia in the region supplied by the nerve. (f) Injury to the base of the skull: The condyle has been known to be driven through the glenoid cavity and inflict fatal injury to the brain. (g) Necrosis may result from complete separation of a fragment from its vascular connections at the time of the injury or subsequently as the result of suppuration. (h) Salivary fistula may result from imperfect healing of an abscess which has burst upon the surface of the cheek. (i) Vicious union, i. e., union with deformity, may occur when the fragments have not been kept in proper apposition,

especially in multiple fractures, or where there has been loss of bone from necrosis. (j) Non-union may be due to want of apposition through lack of treatment, or through the interposition of a loose or necrosed fragment or a dislocated tooth. (k) False joint: In this condition the ununited fragments become rounded off at the ends and held together by a sort of fibrous capsule lined by a smooth membrane which secretes a kind of synovial fluid. In Esmarch's operation for closure of the jaws, the surgeon aims at producing this condition.

Treatment—The following are the methods most frequently used: (1). The four-tailed bandage: A piece of bandage a yard long and 4 inches wide, with a hole 2 inches long in the middle of it, and with the ends split to within four inches of the hole, is applied so that the point of the chin is received into the hole. The hole should be about an inch nearer the upper than the lower edge of the bandage, so that the latter may lift the jaw rather than tend to draw it backwards. The two lower tails are tied over the top of the head, and the two upper ones behind the occiput, the two portions being subsequently knotted together to prevent their slipping. If the upper tails are tied behind the nape of the neck (as recommended by some surgeons) they have a tendency to draw the anterior fragment backwards. Some surgeons supplement the four-tailed bandage with a molded gutta-percha splint. In most cases it is unnecessary and adds to the discomfort of the patient by retaining the perspiration, by becoming soaked with saliva and by pressing upon the soft tissues of the chin. If used it should be perforated with small holes and lined with chamois leather or lint, and the parts dusted over with an absorbent antiseptic powder. The objections to the use of the four-tailed bandage are that when there is much displacement, especially in oblique fractures, the bandage does not remedy it and the jaws being kept in apposition, mastication is impossible and the patient is limited to fluid nourishment.

(2). The Hammond Splint: This consists of a wire frame which is accurately fitted and fixed to the teeth. The splint is fitted in the first instance on a model of the jaw. To obtain the model, the fracture is fixed temporarily by a silk ligature passed round two teeth on each side of the fracture, and an impression of both upper and lower jaws taken in wax. When the models have been

cast, the lower one must be sawn through at the line of fracture, and the pieces fixed together so that the upper and lower teeth articulate correctly. In this way is obtained a model of the same size and shape as the jaw before it was broken. To this model a frame of soft iron wire is accurately moulded, the ends being soldered together. The splint thus constructed is next slipped over the patient's teeth (which should be free from tartar) and fixed in position by means of a number of pieces of iron binding wire about five inches long and pointed at the ends to facilitate their passage between the teeth. The first wire is passed over the outer bar of the splint, between the first and second molar teeth of the left side and below the inner bar; it is then bent round being made to return over the inner bar, between the first molar and second bicuspid and under the outer limb; the two ends are then loosely twisted together. The same process is repeated on right side of the mouth. The wiring is repeated on alternate teeth, until the splint has a firm hold; it is not necessary to wire every tooth, and it is inadvisable to wire those in the immediate vicinity of the fracture. When all the wires have been passed the ends are twisted up, cut short, and tucked away under the outer bar of the splint. After a few days they will probably want tightening up a little more. The advantages of the Hammond splint are (a) the fracture brought into accurate apposition so that the "bite" is restored. (b) It is very firmly fixed. (c) Mastication and speech are very little interfered with. (d) The mouth can be kept clean. (e) The apparatus is out of sight. Unfortunately its applicability is limited to those cases in which there are a sufficient number of firm sound teeth on each side of the fracture to enable it to obtain a firm hold.

(3). The Hayward (or Kingsley) Splint: This consists of a metal or vulcanite cap which fits over the teeth. In the sides of the cap are fixed two wires an eighth of an inch thick; the wires are curved so that, when the apparatus is applied, they emerge from the angles of the mouth and lie over the cheek. The splint is fixed by means of a bandage passing under the jaw between the two wires. Its chief disadvantage is that the projecting wires prevent the patient from sleeping on his side.

(4). The Gunning Splint: This is a vulcanite splint which has depressions to receive the teeth of both the upper and the lower jaws. When applied, the jaws are bound together by a

four-tailed bandage. The disadvantages of this splint are (a) suspension of mastication, (b) dribbling of saliva, (c) fatigue from propping the jaws open, (d) difficulty in keeping the mouth clean.

(5). *Ackland's Splint*: This consists of a plated metal horse-shoe shaped piece with rests on the lower teeth, and a similar one which is applied below the chin. These are fastened together by two movable clamps. To apply the splint the mouth-plate is lined with gutta-percha which is warmed and driven down on the teeth and gums. The chin-plate, lined with wash leather, is put in position and held there. The swivel clamps are then fitted into both plates and by the thumbscrew can be made to clamp the plates together until the requisite tension is attained. The advantages claimed for this apparatus are: (a) It can be quickly and readily applied. (b) It can be used over and again for different patients. (c) The mouth and splint are easily kept clean. (d) It does not interfere with the function of the jaw. (e) It can be used in edentulous cases. The chief disadvantage of any splint having a chin piece is that the pressure of the latter is apt to produce pain and to lead to ulceration or sloughing.

(6). *Ligaturing the Teeth*: This proceeding loosens the teeth and irritates the gums. It should be used only to fix the fracture temporarily until a permanent apparatus can be applied.

(7). *Wiring the Fragments*: This is scarcely ever required for an ordinary fracture, but may be used with advantage when the surgeon has to divide the jaw in performing Syme's operation for removal of the tongue.

On the Choice of a Method—The practitioner must determine in each case what will be the most suitable method of treatment. The following statement will cover the majority of cases met with:—
1. *Fracture of the Body*. (a) In an adult, with firm teeth in each fragment—Hammond's splint. (b) In a child—Hayward's splint, the cap being made of vulcanite and lined with gutta-percha moulded on the teeth. (c) When there are not enough firm teeth to fix a Hammond, a Gunning or Ackland's splint should be used. 2. *Fracture of the angle, ascending ramus, condyle or coronoid process*—four-tailed bandage. Whatever method is used it will generally be necessary to keep the retentive apparatus on for about five weeks. At the end of that period

splints and bandages may be discarded, but it is well for the patient to wear a handkerchief tied round the chin and over the top of the head for some few weeks, especially at night so as to check any unduly violent movement of the jaw.

Correspondenz-Blatt Fuer Zahnärzte for July, 1895.

"HÆMORRHAGE SUBSEQUENT TO EXTRACTION," by Dr. Schmidt, Germany; read before the Darmstadt Dental Society. On this assigned theme there has already been much written, and at first glance it would seem hardly worthy of the effort to review the subject. Yet the fact that new remedies are constantly being recommended in cases of post-hæmorrhage, demonstrates that the discourse is deserving an announcement.

Ordinarily the bleeding resulting from the extraction of teeth should be stopped in a short time, and by the simple use of cold water, since the bleeding is but capillary. In the dental literature there are but few cases of arterial-hæmorrhage described. In a few cases, Dr. Hollander (*Ueber Hæmorrhage*, Leipzig) observed such bleeding after the extraction of the inferior wisdom tooth. Dr. Busch, (*Deutschen Med. Wochenschrift*) noticed this result in but one case, the upper wisdom tooth. In 40,000 extractions, Dr. Parreidt, (*Compendium d. Zahnheilkunde*) never saw a single case of arterial-hæmorrhage. I was afforded the opportunity of seeing 50-60,000 extractions and observed but one instance of arterial-hæmorrhage, that of the right inferior wisdom tooth. The extraction was easily accomplished, yet the blood poured forth in streams from the mouth. Inspection clearly revealed the scarlet arterial-hæmorrhage ebbing from the alveolus. This consequence can but be accounted for in that the inferior dental canal was located high and the dental artery torn off at its juncture with the inferior alveolar artery. With the upper wisdom tooth matters are such that immediately above its roots the palatine artery arises from the pterygo-palatine artery. A rupture or injury to this artery will result in a colossal hæmorrhage.

Aside from the arterial bleedings which are naturally very difficult to quell, it still not infrequently occurs that post-hæmorrhage results from comparatively simple wounds. At the large clinic of the Berlin University Dental Institute, post-hæmorrhage

occurs about once in every month, or of 1,000 patients one post-hæmorrhage. There are various remedies recommended to allay bleeding. An old method is to employ the extracted tooth as a plug. Yet this procedure is not in strict harmony with present knowledge of asepsis. The remedies which accelerate hæmostasia are alum, tannin, acetate of lead, and a solution of ferric chloride. However, liquor ferrum is the remedy most frequently employed, although its disagreeable effects (caustic) make it necessary to use it but sparingly. Chromic acid, whose caustic effects are still more decided, is seldom used. We employ chromic acid still to allay the bleeding after extirpations of sarcomatous conditions. In this case the caustic effects are desirable. One should always attempt to still the after bleeding by inserting common cotton; in most instances the hæmorrhage will be sedated. Should this not be the case there is always time to use the solution of iron. In stubborn cases of bleeding we have employed the following with satisfactory results. Bathe the alveolus with iron applied on cotton. Then shape a small plug of soft gutta-percha; fill the socket with plaster of paris and insert the plug. The entirety soon hardens and the hæmorrhage usually subsides.

AN OLD ADVERTISEMENT.—A rather curious advertisement which appeared in the *Times* of January 1, 1795, is given in a recent issue of the *Strand Magazine*. It runs as follows:

Change of Residence.—Mr. Dechemant, surgeon and dentist, royal patentee and inventor of the new mineral paste teeth, which are incorruptible, without smell, and approved of by the Society of Medicine, as well as by the Academy of Science of Paris; informs the public that he has taken, for the convenience of his profession a large house, No. 1, Frith Street, Soho, where there is a double staircase and apartments conveniently arranged for those who desire to be seen. Mr. Dechemant may be consulted at home from 11 till 3 o'clock. He will give gratis a dissertation on the advantages of his new teeth in which are inserted the different approbations that his discovery has merited from the learned of Europe. The number of people he receives at home does not permit him to visit out of doors. As some persons have hitherto imagined that Mr. Dechemant has no other profession than that of making mineral paste teeth he begs leave to inform the public that he not only practises all that concerns the art of a dentist, but likewise in all diseases of the mouth, and with the greatest advantage, having practiced both medicine and surgery before he made his present discovery.—*Jour. Brit. Dent. Ass'n.*

Letters.

MORE ENCOURAGING LETTERS.

BOSTON, July 8, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—I am at last converted to the DIGEST. I wish to say that I realize the great work you have done in the Protective Ass'n. I believe our liberty has been brought about by your activity and generous attitude toward your brother dentists.

Yours truly, G. P. WIKSELL.

BOSTON, July 5, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—I have read your notice to the members of the Dental Protective Association, and in reply would say, that I feel I have assisted in influencing many members to join the same and shall continue to do so. And to prove my appreciation of the inestimable value of your efforts for our profession, I for one will not feel otherwise than grateful in adding another ten dollars, if you deem it best to assess me, if for no other purpose than to show my feelings towards you for what you have done in the past.

Respectfully yours, W. E. PAGE.

LOS ANGELES, CAL., May 6, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—April DIGEST at hand, and editorial on "Criticism versus Deeds" noticed. If I have been at fault I hasten to correct it, and to tell you how much I have appreciated the self-sacrificing interest you have shown in your work in the Protective Association. I appreciate it more than you can imagine — often when seeing a notice of your having been in some city in the interests of the Association we have spoken of it, and privately if not publicly have expressed our gratitude for your having lifted such a load from us. It would be a good thing if those fellows who give no help, yet reap the benefits, could in some way be made to feel the consequences of being out in the cold.

Very truly, J. D. MOODY.

DANVILLE, VA., July 18, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—Enclosed please find subscription to DIGEST. I have done *nothing* myself, but have been with you in this move all along. If this whole matter could be put before every local, state, and national association in the United States by *word of mouth*, you would soon have the whole profession with you. I shall be glad to help you in any way I can. Yours very truly,

E. P. BEADLES.

LETTER FROM NEW YORK.

NEW YORK, Sept. 15, 1895.

To the Editor of the Dental Digest,

MR. EDITOR:—Pictorial literature is the fad now; it is seen in almost every line of expressed thought. Not many years ago it was predicted that our daily press would in time teem with it—could anything be more fully fulfilled? From childhood picture-gazing was the delight of juvenile life, and mark the contrast between fifty years ago and now. To-day it is almost a perfected art, both in line and color. But little of this has crept into our journalism, save a few attempts of “itemized pathology” that made us all sick. Personal ambition has lent a little encouragement to facial pictorialism, but it died an early death. We notice an attempt by the Ohio Journal for August, and our opinion of it is that it was very modestly displayed. More of it would be acceptable. For instance, in connection with an article that really has some merit, let the face of the author be added to it. There is quite a little interest attached to the identity of men that have often figured creditably before our bodies, and we have many times heard it favorably commented upon in this wise, “We like to be familiar with our active practitioners.” We think it has crept too much into the minds of some—because of instances of bombastic display—a distaste for seeing the faces of “living men,” yet “living pictures” are much in demand. We voice the thought of many good and wise men, “Give us oftener the faces of our *working* men.” Who will lead off in a creditable line of work in this direction? We predict a helpfulness to the journal that does it tastefully and discreetly. Let us become more familiar with the faces of those who are really professional.

Political alchemy is in demand. We of course are not in the secret—the real animus that floated out the “idea” of chemical laboratory in connection with society movements in New York during the last season. Money was declared in the open to be plenty, it was brains that was in demand. It turns out that politics are in a ferment and there does not seem to be anything to harmonize. Since the Hornets hived at the Park, rumor is busy—the henchman is not at ease. Possibly the object made of the Tammany Tiger last autumn has made an entering wedge for more wisdom. Rumor has it that not a little indifference has been noticed regarding the material that has been added to the Odontological Society of New York City. It is asked, will the sapling stand the unusual strain that has been brought to bear upon the original structure? Stomatology is another trial. We were told lately, by a good and true man, that it was believed that Philadelphia had put a test upon their former society that it would not be able to meet—“it is virtually dead now.”

According to the editorial in the August *International*, our American profession will be ultimately merged into the specialty of medicine, it being the legitimate result, but it will lose all that has made American dentistry a power in the world. My! My! what an admission. Now let someone tell us what we are to gain. This does not look like true progress. This tells us that human ability can never bring us to the perfect result. We believe that this old and much-abused world is to be brought back to its former paradise, and then right-doing will be the common act of man instead of the uncommon. Then, and not until then, will mankind become unselfish.

In connection with Dr. Clowes we have learned this fact, that the first time tin was found valuable in connection with amalgam was in 1845. He had occasion to fill the anterior proximal surface of a molar, and the posterior proximal surface of the adjoining bicuspid. It was his custom to fill the surface that would be in sight with tin, and the opposite with amalgam, first filling with amalgam and finishing, so that in putting in the tin filling he would not come in contact with soft amalgam and thus amalgamate the tin. However this theory was exploded when, because of the patient's lack of time, the Doctor had to deviate from his custom and bring the tin in contact with the soft amalgam, and on

seeing the patient a few days afterward, he found that the tin surface had hardened, and that the "horrid block" surface, which had always been associated with amalgam, was not present. He, in common with all who used amalgam, had been met by the denunciation of that "black amalgam," yet it did save many otherwise worthless teeth. At some later date, which we do not possess—cannot some one give the year?—Dr. Hunter of Cincinnati, of continuous gum-fame, conceived the idea of combining tin with the amalgam alloy by heat. Altogether this is an interesting note of the history of our progress.

"Malocclusion is soon to become a much noticed subject. The article by Dr. Barker in the August number of the *Review* is worthy of studious attention. Dr. Bonwill has not unduly emphasized his thoughts regarding the laws that govern articulation. It is to become a subject of large consideration in the future; we do not think we can say the near future, for we are doubtful that we have many who can discuss it, yet an attention will gain more or less knowledge for us as the days go on. The importance in the arch of a single tooth will become italicized some day, and practitioners will not so commonly allow themselves to be so ruthless in removing teeth. Dr. Davenport, of Paris, is on record with a shocking display of the wicked and thoughtless havoc made by indiscriminate extraction. We have been much impressed to see how much malocclusion has to do with inducing pyorrhea. We have quite lately had a crucial illustration which has caused us much thoughtfulness during many sleepless hours. Since then we have been more alert to be critical in our examinations of cases in our hands. Now we have a case that came through the hands of a prominent dentist in another city, and it is a marked one for malocclusion, pressing the superior incisors apart from the laterals and causing much discomfort. The name of such cases is legion.

Larger and more momentous subjects are creeping into the arena for our earnest attention. Dentistry is a far grander calling than hundreds of practitioners regard it. This emphasizes the sacredness of dealing with the human body. *How many are really fitted for the responsibilities that face them in our calling?* Do we not belittle ourselves in much which engages the attention of our professional gatherings? Cordially,

M. A. G.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

HONEST BUSINESS METHODS.

There is no one thing in life which is more desirable than honest and truthful business transactions. When an individual or firm establishes the principle of fair dealing, it is always an attractive feature, and is bound to yield a good reward. This being such a self-evident fact, it seems strange that we so often find business firms losing sight of this important principle, and adopting methods which come under the head of cunning and shrewd practice. Much of this is done under cover, or else reasons are given and made prominent, when in reality they are not the real cause. This is, we think, more true of corporations than of individuals, for the latter will band together into a firm and then will adopt methods which they would feel ashamed to practice individually, thinking that in some way the deception will not be seen, or that no one will know who is responsible for it. Such practices are very common in these various business combinations, and the firms with whom the dental profession have to deal are not exempt from them, which will account for the lack of confidence manifested towards them. The dentists would trust and respect them more if, when they make a reduction in the price of an article, they would state the facts, viz.—that they do it to wipe out competition, instead of saying that, "In accordance with our usual custom of reducing prices of our manufactures as fast as lessened cost of production will warrant it, we now have the pleasure of announcing a very considerable reduction, etc." The former statement would be believed, but when they imply that the reduction is made because of their love for the profession and their earnest desire to serve its best interests, no one who has watched the history and

various business methods of these combinations could possibly believe them. If the suggestions herein offered were acted upon, it would go far towards doing away with the adverse criticism and unfriendly feeling now existing among the dentists towards the dental dealers. A word to the wise should be sufficient.

THE FUTURE WORK OF THE DENTAL PROTECTIVE ASSOCIATION.

At a special meeting of the members of the Protective Association, called during the meeting of the American Dental Association at Asbury Park, a committee was appointed to draft an appeal to all members of the Association, asking for their united cooperation in increasing the membership and in getting all practitioners outside of the Association to join. At this meeting the present litigation in which the Association is engaged was fully explained, also the work yet to be accomplished in order that the profession may be free. The facts there set forth showed that if the Association were to disband, within a year's time patent claimants would be insisting on royalty on numerous things which we are now using, and that these claimants have been deterred in the past only from the fact that the Association stood between them and the profession.

There was also a committee appointed by the American Dental Association to examine the books, accounts and methods of doing business of the Association. The two committees united and reported as follows. To the Dentists of America:—

For several years the American Dental Association has by special vote appointed a Committee to examine the accounts of the Dental Protective Association of the United States. The reports of these Annual Committees are published in the Transactions.

The undersigned, having been appointed the Committee for this year, have carefully examined the books of the Dental Protective Association, with the vouchers for receipts, expenditures and investments.

As the peculiar situation of the Protective Association has made it imperative that full reports of its membership, assets, and

work could not be safely published, and as misunderstandings and misrepresentations of the same have to some extent prevailed, we submit to the dentists of the country for their encouragement and enlarged support of the Association, the following statements which we believe to be true:

1st—That all receipts from membership fees have gone to the treasurer of the Association, the Hon. Lyman J. Gage, President of the First National Bank of Chicago, and that all payments have been made by him upon the order of the Executive Committee of the Association, Dr. J. N. Crouse, Chairman, and exclusively for the legitimate purposes of the Protective Association.

2nd—That the Dental Protective Supply Company is a separate corporation, chartered by the State of Illinois and owned by stockholders who have subscribed and paid for their stock, and that none of the monies of the Protective Association have been used in the business of the Supply Company.

3rd—That we believe that the management of the Protective Association has been wise, judicious and particularly economical; the chairman, Dr. Crouse, having given a large part of his time for eight years to the work, and without any remuneration.

4th—That of the receipts from the membership fees, two-thirds has already been expended, and the remaining one-third is invested in a loan upon real estate secured by mortgages.

5th—We believe this amount must be very largely increased to carry to a successful issue the suits now on hand, and for further protection of the profession from other unjust claims.

6th—In view of the great benefits which the Association has been to every individual in the profession, and of the present needs of the Association, we ask every dentist in the country, who is not a member, to join the Association and thus do his part in securing the protection shared by all.

H. A. SMITH,
L. D. SHEPARD,
L. L. DUNBAR,
HENRY W. MORGAN,
H. B. NOBLE,

Committee of the American Dental Association.

We believe the above to be true and we urgently request a prompt and general response.

Geo. H. Cushing,	Frank Abbott,	E. T. Darby,
L. P. McManus,	C. N. Peirce,	Edward S. Gaylord,
J. S. Cassidy,	S. G. Perry,	Geo. J. Friedrichs,
Alonzo Boice,	Thomas Fillebrown,	A. O. Hunt,
Corydon Palmer,	J. D. Patterson,	H. J. McKellops,
Thos. E. Weeks,	D. D. Smith,	Garrett Newkirk,
C. N. Johnson,	E. D. Swain,	Edward C. Kirk,
James Truman,	Louis Ottofy,	M. W. Foster,
Chas. A. Meeker,	Meyer L. Rhein,	Louis Jack,
B. C. Nash,	Oscar Adelberg,	Grant Molyneaux,
S. C. G. Watkins,	R. M. Sanger,	Chas. C. Crittenden,
Wm. Donnaly,	W. F. Fundenberg,	V. H. Jackson,
W. W. Walker,	T. W. Brophy,	A. H. Peck.

Now, Doctor, the situation is briefly this—we must have added funds to pay bills and continue the litigation, as we have expended all of the available money, except what is loaned out for a term of years on real estate security. The money for our immediate needs must be raised in one of three ways: by selling the mortgage, which would have to be done at some sacrifice and would exhaust the funds of the Association, and end, therefore, any farther work, as I should certainly not feel it my duty to assume the responsibility of paying the bills; or, we could assess the members on their pledged obligations; or, what is better, and what I suggested in my letter in the June number of the *DIGEST*, is to increase the membership.

At the meeting above referred to it was voted unanimously that the Association must not disband. Accordingly I was requested to have printed as soon as possible a list of the membership in each state and to furnish the same to the members of the Association in each state, in order that they may be able to organize and do the work necessary to carry out the appeal of the above committee. I am at work upon the lists and will send them just as soon as they can be gotten ready. The present membership can easily do this work of getting the balance of the profession to join with us. This once accomplished our independence and freedom from numerous threatened abuses are assured.

J. N. CROUSE.

WHAT WILL OUR FUTURE BE?

As there are now thirty-eight recognized colleges, according to the report of the Dental Faculties Association, which are about to open their doors to new students, the question arises, who should be admitted? As we showed in a former editorial, that no part of the profession has anything to say as to who shall enter its ranks, except the faculties of the colleges, it is not out of place for us to raise the above question. We are aware that, by the rules of the Association, certain literary qualifications are required of an applicant. However, this is not enough, as the practice of dentistry requires peculiar qualifications which are rather distinct from any other occupation in life. A young man may be bright, a good student, and well grounded in the classics, and yet an attempt to make a dentist of him would destroy his usefulness in life, make him a detriment to the community in which he practiced, and not a credit to the dental profession. Therefore, the first six weeks of the college course should be spent in finding out who are properly qualified, by nature as well as training, to be dentists; and those who are not fit should have their fees refunded, and should be persuaded to select a more suitable calling in life. In short, the "plucking" should be done at the beginning of the college course rather than at the end.

Notices.

EXECUTIVE COMMITTEE OF SOUTHERN DENTAL ASSOCIATION.

W. H. Richards, Knoxville, Tenn., chairman; E. B. Marshall, Rome, Ga.; W. R. Clifton, Waco, Tex.; Gordon White, Nashville, Tenn.; N. E. Turner, Raleigh, N. C.; S. B. Cook, Chattanooga, Tenn.

DENTAL SOCIETY OF SOUTHWESTERN MICHIGAN.

The semi-annual meeting of this society will be held at St. Joseph, Oct. 8 and 9, 1895. A good program has been arranged, and a very interesting and instructive meeting is expected. All dentists in Michigan and adjoining states are cordially invited to attend. For further information or copies of program address Dr. S. M. White, Benton Harbor, or Dr. E. I. Backus, St. Joseph.

E. I. BACKUS, Sec'y.

SOUTHERN DENTAL ASSOCIATION.

The next annual meeting of the Southern Dental Association will be held in Atlanta, Ga., commencing the first Tuesday in November. Arrangements are being made for the greatest meeting in the history of the "Southern." The Cotton States and International Exposition will be in progress, and railroad rates will be very low. All friends will be given a hearty welcome.

E. P. BEADLES, Cor. Sec'y.

DENTAL ASSOCIATION OF NEW SOUTH WALES.

The third annual meeting was held at the Australia Hotel in Sydney, Aug. 2, 1895, and was well attended. The president, Dr. Burne, occupied the chair, and stated, on behalf of the council, that great hopes were entertained of the Dental Bill being brought before Parliament and becoming law during the ensuing year. The balance sheet showed a credit balance of \$365 in hand. It met with general approval. The following officers were elected for the year 1895-6:—President, Dr. Burne; vice-presidents, Messrs. H. Paterson and S. Chaim; hon. treasurer, Dr. W. T. Halstead; hon. secretary, Mr. H. Taylor; committee, Dr. A. Hinder, Messrs. C. C. Marshall, F. G. Hollway, J. Darton, H. S. Newton, E. A. Gabriel, and B. Ruse; auditors, Messrs. Corbett and Hebblewhite. A vote of thanks was accorded to the president, the hon. secretary and the chairman.

H. TAYLOR, Hon. Sec'y.

CLINIC BY ALUMNI ASSOCIATION OF C. C. D. S.

The great success of the clinic conducted by the Alumni Association of the Chicago College of Dental Surgery at its last January meeting, has determined the association to repeat that program, considerably extended, at the coming January meeting, making a two days session instead of one, and enlarging upon the social features so thoroughly appreciated last winter. The spacious rooms and up-to-date equipment makes the College building an ideal place for clinics of all kinds, and they will be arranged so as to be instructive and satisfactory, not to a few only, but to all in attendance. Extended notice will be given later.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The twelfth annual meeting of the National Association of Dental Faculties was held at the Ocean Hotel, Asbury Park, N. J., commencing Saturday, August 2, 1895; the president, Dr. Frank Abbott, in the chair. The entire membership of the Association was represented at this meeting as follows:

University of California, Dental Department—L. L. Dunbar.

University of Denver, Dental Department—R. B. Weiser.

Columbian University, Dental Department—J. Hall Lewis.

National University, Dental Department—J. Roland Walton.

Southern Medical College, Dental Department—Frank Holland.
 American College of Dental Surgery—Louis Ottofy.
 Chicago College of Dental Surgery—Truman W. Brophy.
 Northwestern College of Dental Surgery—J. A. Whipple.
 Northwestern University Dental School—George H. Cushing.
 Indiana Dental College—George Edwin Hunt.
 University of Iowa, Dental Department—A. O. Hunt.
 Louisville College of Dentistry—Francis Peabody.
 Baltimore College of Dental Surgery—M. W. Foster.
 University of Maryland, Dental Department—F. J. S. Gorgas.
 Boston Dental College—J. A. Follett.
 Harvard University, Dental Department—Thomas Fillebrown.
 Dental College of the University of Michigan—J. Taft.
 Detroit College of Medicine, Dental Department—G. S. Shattuck.
 University of Minnesota, College of Dentistry—Thos. E. Weeks.
 Kansas City Dental College—J. D. Patterson.
 Western Dental College—D. J. McMillen.
 Missouri Dental College—A. H. Fuller.
 University of Buffalo, Dental Department—W. C. Barrett.
 New York College of Dentistry—Frank Abbott.
 Ohio College of Dental Surgery—H. A. Smith.
 Western Reserve University, Dental Department—H. L. Ambler.
 Pennsylvania College of Dental Surgery—C. N. Peirce.
 Philadelphia Dental College—S. H. Guilford.
 University of Pennsylvania, Dental Department—James Truman.
 Meharry Medical School of Central Tennessee College, Dental Department—G. W. Hubbard.
 University of Tennessee, Dental Department—J. P. Gray.
 Vanderbilt University, Dental Department—Henry W. Morgan.
 Royal College of Dental Surgeons of Ontario—J. B. Willmott.
 The following colleges were admitted to membership:
 University College of Medicine, Dental Department, Richmond, Va.—
 L. M. Cowardin.
 Atlanta Dental College—Wm. Crenshaw.
 Birmingham Dental College—T. M. Allen.
 Cincinnati College of Dental Surgery—G. S. Junkerman.
 Cleveland University of Medicine and Surgery, Dental Department—S. B. Dewey.

The following, laid over under the rules from last year, were adopted as here given;

Resolved, That in view of the recommendation of the Executive Committee that this association now in session shall require that all colleges, members of the association, shall extend the term of the session of 1896-97, and of succeeding sessions, to not less than six months each.

Beginning with the session of 1895-96, no college shall be permitted to retain membership in this association if it is conducted or managed, in whole or in part, by any person or persons who do not practice dentistry in accordance with well recognized and generally accepted forms, generally known as den-

tal ethics, or if they are owned in whole or in part by men or women who are engaged in disreputable dental practice, or if any college have upon its list of trustees, the faculty, demonstrators, or in any other capacity, any one who does not practice dentistry in accordance with the principles above mentioned. This shall refer to dentists only.

Beginning with the session of 1896-97, the examinations conducted by the colleges of this association shall be in the English language only.

The other resolutions which came over from last year for action were laid on the table.

A resolution was adopted requiring each college holding membership in the association to file with the secretary sixty days before the next meeting a detailed statement of its equipment and facilities for teaching; all new applicants to file a similar statement with their applications. The secretary was instructed to have blank forms printed for the purpose and forwarded to the various schools.

The report of the special committee on preliminary examinations was received and the committee discharged.

The following resolutions offered by Dr. Patterson were adopted:

Resolved, That students in attendance at colleges of this association are required to obey the laws regulating the practice of dentistry in the various states, and failing to do this, shall not again be received into any of the colleges of this association.

Resolved, That when a college of this association has increased the cost of tuition fees, no student shall be received at the former fee except those who have matriculated at such college prior to such action.

The Committee on Text-Books reported in favor of the adoption as textbooks by the colleges of the association of two works, namely, "Dental Anatomy," by G. V. Black, M. D., D. D. S., and "Methods of Filling Teeth," by Rodrigues Ottolengui, M. D. S. The report was adopted.

The following lie over until next year:

Amendment to the rules offered by the executive Committee:

That each college be allowed two delegates, and be limited to one vote for each school.

By Dr. Peabody:

That when a student who has matriculated within the time limit in any recognized college shall, from sickness, death or sickness in family, lack of funds, or other reasonable cause be compelled to retire from that college before the expiration of the term, he may be allowed to make up the deficit of time in the same or any other college (provided he enter at a date not later than that on which he retired), be examined by the last college entered, and if the examination be up to the requirements of that college, and otherwise satisfactory, may be given tickets for advanced standing or graduated, as the case may be.

By Dr. George Edwin Hunt:

Amend the last portion of Rule 3 to read as follows:

"Except on such occasions as would have been imposed in the original school, and these to be ascertained by conference with the school from whence he came."

By Dr. Gray:

Moved that when students from one college apply for advanced standing to any other college of this association it shall be the duty of the Dean or Secretary of the latter college to ascertain by correspondence with the college from which the student comes if there be any objection to his acception.

By Dr. Gray:

Resolved, That all colleges of this association shall charge not less than one hundred dollars tuition each session.

By Dr. A. O. Hunt:

Resolved, That a student who is suspended or expelled for cause from any college of this association shall not be received by any other college during that current session.

In case the action of the first college is expulsion the student shall not be given credit at any time for the course from which he was expelled.

Any college suspending any student shall at once notify all other members of this association of its action.

The following resolution offered by Dr. Ottofy was adopted:

Resolved, That the endorsement of applications for membership, made during the coming year, shall be based upon definite knowledge obtained by a careful examination of the methods of teaching, the equipment, and the efficiency of the Faculty.

The report of the committee on revision of the constitution, laws, and codified rules was considered section by section, and laid over for final action next year; and the committee, consisting of Drs. Louis Ottofy, A. O. Hunt, and J. D. Patterson, was continued.

The following were elected officers for the ensuing year: S. H. Guilford president; Geo. H. Cushing, vice-president; Louis Ottofy, secretary; Henry W. Morgan, treasurer; J. Taft, Thomas Fillebrown, B. Holly Smith, executive committee; H. A. Smith, A. O. Hunt, and T. W. Brophy, ad interim committee.

The newly elected officers were installed and the president announced the standing committees as follows: J. A. Follett, L. L. Dunbar, Geo. Edwin Hunt, C. N. Pierce, and T. W. Brophy, committee on schools; J. D. Patterson, A. O. Hunt, J. B. Willmott, T. E. Weeks, and J. P. Gray, committee on text books. Adjourned to meet at the call of the Executive Committee.

News Summary.

BUCCAL DRYNESS.—When the mouth is dry from administration of opium or any of its alkaloids, give the patient lemonade or other acid liquid. The salivary glands, yielding an alkaline secretion, are stimulated to greater activity by the presence of an acid substance.—*Nursing World*.

A METHOD OF HARDENING ALUMINUM.—According to *Invention*, the hardness which aluminum is said to lack can be imparted to it by the addition of

chromium. Certain precautions have to be taken in alloying the two metals, owing to the difference in their fusing points. If electrolysis is employed for this purpose, one or another of the known methods can be used, and the alumina, salts of alumina, cryolite, etc., treated direct with a determined quantity of granulated chromium, or chromium in any other suitable condition, or with the salts or oxides of chromium. Finally, an ingot of chrome aluminum is obtained which can subsequently be treated and transformed by known methods. The aluminum is said to be rendered as hard as chrome steel by this treatment.

FIBRO-MYXOMA OF THE TONGUE.—At a recent meeting of the Royal Academy of Medicine in Ireland a somewhat rare tumor of the tongue was exhibited by Professor M'Weeney. It was encapsuled, translucent, yellowish in color, and was about the size of the kernel of a hazel nut, and occurred in a man 23 years of age, who had no history of syphilis, either congenital or acquired. Histologically the growth proved to be a fibro-myxoma.

CURVED TEETH.—It is, of course, well-known that should anything prevent the normal wear of curved teeth having persistent pulps, they grow into a complete circle, the point penetrating the bone of the jaw close to the root of the tooth. In the interesting and valuable work on Mammals, by Flower and Lydekker, it is stated that the Fiji Islanders avail themselves of this circumstance to produce one of their most valued ornaments—a circular boar's tusk—the upper canines being extracted, the lower ones are allowed to grow to the desired form.—*Dental Record*.

DRAINAGE TUBE THROUGH AN ARTIFICIAL TOOTH IN ALVEOLAR ABSCESS.—In the treatment of alveolar abscesses the task is usually simple where there is a fistulous opening. The forcing of an escharotic through the end of the root and out through the fistula is almost a sure cure without further treatment in ordinary cases. However, there are some which are much more difficult, and require a different line of treatment. This has reference to cases in which there is no fistulous opening, and the only drainage is through the tooth into the mouth. I have in mind a case of this kind, presented seven or eight years ago, where it was necessary to keep the root open, and being a front tooth with a porcelain crown, the patient was unwilling to be without a tooth. I had therefore to use an ordinary pivot tooth, grinding it out so that a tube, extending from the root into the mouth, could be cemented in it. The drainage was thus kept open, and after some months' treatment the abscess was cured and the tooth could be permanently closed up. In another case I secured drainage by means of a tube cemented between a porcelain facing and gold backing, open, as in the other case, from the root into the mouth. In this way the artificial crown need not be disturbed, as the root can be treated through the tube as often and as long as necessary. C.

Obituary.

DR. T. H. CHANDLER.

Thomas Henderson Chandler, A. M., L.L. B., M. D., D. M. D., dean and professor of mechanical dentistry in the Dental Department of Harvard University, died at his residence, 72 St. Stephen St., Boston, Mass., on Aug. 27, 1895, aged seventy-one years. He had been sick for some time, so his death was not wholly unexpected.

His early education was obtained in the old Eliot School, from which he was graduated at the head of his class, with the Franklin medal. He next entered the Boston Latin School, graduating four years later as Franklin medalist and class leader. He entered Harvard College with honors, obtained several prizes for excellence in his studies, and graduated as a Phi Beta Kappa man and president of the Hasty Pudding club. He then entered the Harvard Law School, graduating in the class of 1853.

As his eyes troubled him he applied for the post of usher in the Boston Latin School, and obtained it through his high scholarship and his testimonials from the president of Harvard College. In 1858 he began the study of dentistry, a science then almost in its infancy, and some years later studied medicine, but retained dentistry as his specialty. On the organization of the Harvard Dental School in 1869 he was offered the post of adjunct professor of mechanical dentistry, and in 1872 was appointed professor with the degree of D. M. D., *honoris causa*. The death of Dr. Thomas B. Hitchcock in 1874 left the school without a dean, and Dr. Chandler was unanimously elected to fill the vacancy. During the twenty-one years he held this post, never until the few months preceding his death did he fail in attending a single meeting of the faculty or miss fulfilling a single duty connected with the office. The students all liked him, and his associates all respected him, for he was a man of the most unobtrusive and retiring disposition, which was often carried to the pitch of diffidence.

His literary work consisted chiefly of papers for the different medical and dental journals: an exhaustive article on "Thumbsucking in Childhood and its Results" was translated into all the European languages and obtained a European reputation for its author. Translations of two large works on dental caries, one by Leber & Rottenstein, and the other from the French of Magitot were the chief events of his literary career. In this age of push and hurry it can be said of few persons that their work was done slowly, thoroughly and to last. Dr. Chandler's ambition was not to be a shining light, but to use his best judgment, his utmost skill and the greatest care in every task, however trivial, that he undertook. He was a good husband, a kind father, a true citizen and an honest man.

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Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

BY J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 515, No. 9, Vol. 1.]

The causes of imperfect teeth and those of poor quality, as well as of their destruction by dental caries, are due in a great measure to imperfect nutrition and resultant indigestion and dyspepsia, for much of which improper food and unhygienic living, coupled with too great mental exertion, are responsible.

People who live in the country say that, as a rule, the farmers live more plainly than any other class, and yet they suffer from imperfect and decayed teeth. Here we have an example of the lack of a proper variety of good food. A large proportion of the farming community, in the western country at least, are compelled, in order to make both ends meet, to use for food that part of their produce which is not marketable. The poultry, eggs, milk and butter must be sent to market in order to get money for clothing, medicines, doctor's bills, and other necessities of life. They seldom have any meat on their tables except salt pork, and that is not cured with the skill given by a practical butcher. No other class of the American people work so hard and so many hours for so little money as do the farmers. They usually have pure air and water, and reasonably good vegetables in season, but as a rule their bread is not wholesome, being neither well raised nor well baked. Farmers do not have so much mental excitement and strain on the nervous energies, but they nevertheless have, from the causes we have given, much trouble with and loss of the dental organs. Not so much, however, as the inhabitants, either rich

or poor, of large cities. The average inhabitants of towns and small cities have the best teeth, and as a rule live the most rational lives.

The inhabitants of large cities are the greatest sufferers in regard to their teeth. Here we have the extremes in every respect. The wealthy are so busy and under so great a mental strain to keep their gains and compete with others of the same class that they have not time to let nature perform her work. The average business man is in a constant struggle, and his family are more or less like him. The wife must use all her mental energy to perform the added household and social duties which riches bring. The children are pushed in their studies so as to get all the advantages which money affords, and in this and many other ways are made old before their time. Even the small children suffer, for they are generally under the care of servants, and so are fed, when babies, on prepared food, which means poor teeth at least, and are indulged in many ways, but especially in their eating, which means dyspepsia.

The very poor of large cities probably have the most trouble with and destruction of their teeth. Living in filth, breathing foul air, and eating poor and insufficient food, as many do, are sufficient reasons for this loss of the dental organs. This class cannot be much benefited by advice or by anything we can do, since their poverty puts the best and most wholesome food beyond their reach, compels them to occupy unhealthy apartments, etc. The causes of their poverty, indolence and lack of foresight, make it hard to benefit them or to change their habits of living. As a rule they never come into the hands of a dentist except in a free dispensary, where they can have the aching teeth removed gratis. A large proportion of this class do not even apply for relief, suffering until death of the pulp or alveolar abscess intervene and end their trouble. This is a pitiful picture and one which should be impressed upon the minds of such a profession as the dentists aim to be.

But what of the better class who are in our hands at frequent intervals? The large majority of them know but little of hygienic living, not understanding the nature of indigestion, or the proper kind of food for nourishing the body. When they become too much distressed they apply to their physician, who, if he be of

the homeopathic persuasion, gives them some little pills; if of the other school, he prescribes castor-oil and turpentine, or writes a prescription for cathartic pills, or perhaps he orders some patent medicine with which he has become infatuated, the drug stores offering a large variety to select from. The average physician is usually too busy to inquire much into the manner of living of the patient, in fact the average doctor does not know much about diet anyway. Therefore, it devolves upon the dental profession to care for the patient's health, they having quite as good an opportunity to instruct the patient as to the proper food and the hygienic regulations of life. We are inclined to believe that the intelligent part of the dental profession, meaning those who read and contribute to the journals, know quite as much about diet and the proper methods of living as any other class who have to care for the human family. Are we doing our full duty in this direction? Considering that healthy living adds so much to the usefulness and pleasure of life, and that, when once properly understood, it can be so easily attained, it does not seem that we are.

Again the question arises, how can the proper knowledge be diffused except by word of mouth when the patient is in the chair, and it remains unanswered. We would be glad to have for publication the different methods of giving instructions which are in vogue among our readers, for too much light cannot be cast upon this important subject of preventive treatment.

(TO BE CONTINUED.)

DILUTING OF DISINFECTANTS.—The diluting of disinfectants with alcohol, glycerine and oil makes them ineffectual. Dr. Lenti, of the Hygienic Institute of Naples, has found that corrosive sublimate dissolved in alcohol has proved useless even in 1 to 250 solution on spores which were placed in solution for 48 hours, their virulence was only weakened. By adding 10 per cent. water to the alcohol the germs were destroyed in a 1-1000 solution. A 2 per cent. solution of corrosive sublimate in pure glycerine was useless even after subjecting the spore to it for four days. By adding 40 per cent. water they were destroyed in a solution of 2-1000 in 24 hours. A 10 per cent. solution of carbolic acid in alcohol is useless, and remains so even up to 50 per cent. By adding 80 per cent. water the germs were destroyed in 48 hours. A 10 per cent. solution of carbolic acid in glycerine proved ineffectual even after 72 hours; 10 per cent. water added did not change it, but after 80 per cent. water was added it destroyed the germs in 48 hours. A 20 per cent. solution of carbolic acid in oil, and a 10 per cent. solution of lysol in oil, are both useless.—*Zahntechnische Reform.*

SIMPLE METHOD OF REFITTING PLATES.

BY J. R. PAGIN, D. D. S., VALPARAISO, IND.

The method given in the September number of the *Digest* for refitting plates, as a copy of an article by Dr. J. E. Davis, is no doubt a good one. However, I believe the following is simpler, and it is a method that I have long followed:

Take impression and make the cast in the usual manner. Set the old plate on the cast. It will fit sufficiently well to give proper antagonism of the teeth in the finished case. If there are any marked undercuts, cut off rubber on old plate so that it can be placed on cast accurately without marring same. Remove the teeth from the plate carefully. This can be accomplished without springing the plate, by heating the teeth one at a time and gradually in the flame of a spirit-lamp. There is no necessity for checking the teeth. Now with a file or engine bur cut away that portion of the rubber which immediately surrounded the pins. Then set the teeth back on the rubber in their original position, and replace with wax the portion of rubber cut away. Try it in if you desire. Invest in the usual way, separate and remove wax and old rubber, and pack entirely with new rubber.

I follow this method in repairing plates that have been badly broken. If the plate fits well do not take a new impression, but let the old plate answer that purpose. Always remove all the old rubber, for it is just as easy to remove all as part of it, and the work is certainly more artistic and substantial and more satisfactory to both patient and dentist.

A POINT IN CHLOROFORM ANESTHESIA.—The color of the ear is a good index in chloroforming, and can always be observed.—*Virginia Medical Monthly*.

RABBITS AND COBRA VENOM.—At a meeting on June 5th of the Medico-Chirurgical Society of Edinburgh, Professor Fraser showed some rabbits, which, by repeated injections of small doses of the poison, he succeeded in rendering immune to the action of cobra venom. One of these had received sufficient poison to kill 320 rabbits of its own weight. The period elapsing in man between the bite and a fatal issue being longer than in rabbits, Professor Fraser thought the indications for the use of antitoxin serum were much more favourable.—*Dental Record*.

TARDY DEVELOPMENT OF INCISOR TEETH.

BY LEWIS H. ROBINSON, D. D. S., BROOKLYN, N. Y.

A case quite unique is presented by a young girl now fifteen years of age. When she was eight years old my attention was called to the soundness and firmness of the superior central incisors—the absence of all mobility or tendency to loosen. The laterals and first molars were in place, and from this time until she was twelve years old there was nothing tardy or unusual in the eruption of the other teeth. At twelve all the teeth that are due at this age, including cuspids and second molars, were through and in good position without impact. I am firmly convinced that the centrals would have remained intact in the mouth till she was thirty, or even longer. They were shorter than the permanent teeth and made her look uncouth, and knowing that she would have a laudable pride in regard to her appearance when she became a little older, and thinking that she might better wear a bridge with two artificial teeth attached if the worst prevailed and the permanent organs failed to appear, I advised her mother to take her to Dr. Colton and have them extracted, with the request that the teeth be saved for my inspection. By some misunderstanding this was not done and they were lost, consequently I am unable to say how much absorption, if any, had taken place.

Last January I gave a clinic before the First District Dental Society at the New York College of Dentistry, and had this case there for the purpose of taking notes and seeking a parallel. Out of the hundreds who saw it only one had met with a similar case. That one was Dr. L. S. Straw of Newburg, and his recollection was that in his case these tardy members were erupted at about seventeen.

I am one who believes that cicatricial tissue offers more resistance to an erupting tooth than normal gum. Furthermore, I believe the gum rarely if ever retards dentition, so I have never lanced it, thinking the teeth were retarded not by mere soft tissue but by non-absorption of bone. I may say here that a slight prominence of the gum sufficient to give a faint outline of the two teeth has been noticeable for the past two years.

The patient when a child had a very severe attack of scarlet

fever. A long train of evils follows this dread disease. In severe forms of it the nose becomes violently inflamed. May not this inflammation have extended to the nasal surface of the superior maxilla and caused some dyscrasia in the region of the germs of the centrals, which caused the augmentation of the alveolus of the new teeth to be checked, thus preventing the septum between them and that of the corresponding milk teeth from becoming absorbed and disappearing?

Since my return from the country this fall my patient has been in to tell me that she felt a tooth with her tongue. Upon examination I was gratified to see the right central beginning to break through the gum, but not enough of it has presented to enable me to determine what the character of the tooth will be.

CHANCER OF THE GUMS.—A case of chancre of the gums is recorded in the *Medical Week*: The patient was admitted into hospital suffering from sore throat and jaundice, and a few days subsequently a well marked roseola and other syphilides made their appearance, though there was no trace of chancre on the genital organs, lips or tonsil. The upper gums, however, bled in one spot, which was crescent-shaped and indurated, and found to be of a chancrous nature.

THE TREATMENT OF HEADACHES.—Dr. C. C. Crolly, of Pleasantville, New York, makes the following suggestions in regard to the treatment of a large number of headaches, such especially as are associated with a uric acid diathesis (*The Pharmaceutical Era*, July 4, 1895):—

I treat headaches with the greatest success as follows; in fact I never knew my method to fail: One teaspoonful extract of malt (with a few drops of dilute hydrochloric acid, to stop fermentation), after meals. This will digest the starchy food. Five to fifteen drops of fluid extract cascara sagrada, if constipation is present, just enough for one evacuation. Half to one teaspoonful phosphate of soda three times a day. This can be continued indefinitely, without danger, and is more successful than salicylic acid. It is equally as good in acute rheumatism.

When phosphate of sodium is taken internally, there are formed in the urine, while it is descending through the lumen of the uriniferous tubules, by the chemical union of the uric acid with the salt and the decomposition of the two, an acid urate of sodium, and an acid phosphate, the di-hydrogen phosphate, and in this way does the patient get rid of his rheumatism, his headache, neuralgia, or other attacks dependent upon too great a quantity of uric acid.

Digests.

The Pacific Stomatological Gazette for September, 1895.

"DENTAL JURISPRUDENCE.—THE TEETH AS A MEANS OF IDENTIFICATION," by H. R. Wiley, A. B., San Francisco. The testimony of dentists, as a means of identification, has been a very important factor in jurisprudence. This subject deserves careful consideration, as in more than one celebrated case, generally criminal, the teeth have proven to be the conclusive means of identification. In the process of decomposition all familiar external outlines of the human figure quickly disappear, and the size and general formation of the bones of the skeleton, although useful in corroboration, are not sufficient when considered alone to establish identity. Peculiarities of the teeth, either natural or artificial, may remain the same for years, and by them a corpse may be recognized, a guilty man convicted, or an innocent man saved. This branch of evidence becomes more significant with each added year of our present civilization. The dental surgeon puts his mark upon each of his patients, and it is even now difficult to find a person of mature years who does not bear the mark of some dentist.

Within the lines of his profession the dentist has many means for positive identification. He may have records, diagrams, models or moulds of the mouth of the person whose remains are believed to have been found, or whose identity is otherwise in question. The expert should be very cautious in giving this kind of evidence. Unless his examination of the mouth has been very recent it would probably be difficult for him to remember all of the details of its condition. He cannot rely fully upon records, etc., because other and more recent changes in the person's mouth may have occurred since the diagrams, etc., placed in evidence by the expert. It is dangerous for the witness to make statements of a nature more positive than the circumstances, conditions and exhibits seem to justify, as a cross-examination is likely to result in the complete destruction of the entire testimony of the person who falls into that error. Of course, where anomalous or unusual conditions exist in the mouth of a patient the expert is able to be more positive in his testimony. As means of identification, Dr.

Rehfuss refers to "the presence or absence of teeth; the condition of the alveolar process; the presence of dentures; fillings or mechanical dentures and contrivances; irregularities in the arrangement of the teeth; state of decay, and many other peculiarities." It seems very important that a dentist should preserve in his office a careful record of all his work, as accurate knowledge of his patients' teeth may prove, in some particular case, of vital import in the matter of identification.

"AN ELECTRIC WATER-HEATER," by T. L. Hill, San Francisco. A very convenient way of heating water by any one using electricity for lights, motor-power, etc., is to procure an electric light globe, put a small tap in the pointed end, and fix it firmly to a wall bracket; arrange to have a sixteen c. p. bulb go inside of this. The water is put between the bulb and globe. By using a red light it makes an ornamental, as well as useful water-heater. We also have a small electric stove for a gutta-percha heater, warming instruments and annealing gold. Both are home-made, and can be gotten up at a trifling expense.

The Ohio Dental Journal for September, 1895.

"ABSCESSSES ON THE ROOTS OF TEETH CONTAINING VITAL PULPS," by Dr. W. E. Walker, Pass Christian, read before the Mississippi Dental Association, 1895. In the first case, occurring some five years ago, the tooth had all the appearance of vitality, being sound and the gingival margins intact. An acute abscess about the buccal roots of a left superior molar, causing the tooth to protrude from the socket, seemingly pointed to a dead tooth as cause. On drilling into the molar, however, the dentine was found to be normally sensitive. Opening into the pulp-chamber was abandoned, and the case was treated systemically, and the tissues locally. He did not succeed in absorbing the abscess, but after lancing, the sinus healed spontaneously as with common phlegmons.

The second case was seen about seven months ago. The patient presented having lost an oxyphosphate filling, which had been in place about five years, from a mesial cavity in the left lower lateral. The patient had suffered severe pain; the tooth protruding and very tender; swelling over apex of the root.

The filling had been out about ten days. The indications were again those arising from obscure position of the pulp. Drilling towards the pulp-chamber with a small, keen bur showed the dentine to be very sensitive. A dressing seal filling was therefore inserted and calcium sulphide prescribed, and the gum painted with equal parts aconite, iodine and chloroform. The patient returned the next day with everything comfortable, and in normal condition at the end of a week, when the cavity was permanently filled. This case was due to serous calculus on the side of the root, the pus caused by this irritation forming an abscess and forcing its way through a fistulous opening, instead of appearing at the gingival margin, as in the ordinary form of pyorrhea alveolaris.

The third case was more complicated. A chronic alveolar abscess was found at the right upper bicuspid, the tooth having been devitalized and crowned to serve as an abutment for a bridge, in service for ten years. The patient was uncertain how long the abscess had been present. In drilling through the gold crown and oxyphosphate filling an obstacle was encountered in the lingual root-canal, and on removal of the bridge and crown, further progress in cleaning the root-canal being impossible, the obstruction was found to be a plugger point! The canal was cleaned, thoroughly impregnated with an antiseptic, and the root filled, the abscess healing completely within forty-eight hours.

In the same mouth the right upper lateral had a chronic abscess discharging through the labial surface of the gum, midway between the gingival margin and the apex. The gingival margin was intact. The tooth had large approximal gold fillings in both mesial and distal surfaces, and was so badly discolored as to leave little room for doubt but that the pulp was devitalized. Here, again, drilling into the lingual surface, in order not to disturb the fillings, while the dentine was not very sensitive, a living pulp was found, though it had receded some distance, probably from the close proximity of the gold fillings, and also the age of the patient. After drilling through secondary dentine the living pulp was reached nearly as high as the cervix. This pathological condition favoring pulp nodules, arsenic was applied to devitalize the pulp. The abscess was then probed, striking the root at right angles to its surface, half way from cervix to apex, but not trace-

able further in any direction. The sinus was packed with cotton for several days to enlarge it for examination, when some granules of serumal calculus were found in the root. They were removed mechanically, followed by a drop of trichloroacetic acid, left in the sinus till the burned tissue came away, when the sinus was found to be completely cured, and this while the arsenical application was still in position and the pulp not yet dead. At the proper time the pulp was removed and the root-canal filled. There was no tendency to recurrence of the abscess, and no connection was found between abscess and pulp-chamber.

"GENERATION AND DEGENERATION OF THE TISSUES OF THE MOUTH," by W. H. Whitslar, M. D., D. D. S., Cleveland, O. Beginning with the cell or egg, its first aptitude is its adaptation to its environments, and in the hope of the establishment of an equilibrium between itself and parent, it extracts from its trysting place pabulum until it is expelled from the body. The equilibrium between parent and embryo is not recognized until the child is entirely independent, and a personal existence commences. To be specific we must particularize. Every animal arises from an egg, i. e., an impregnated cell from the female. The union of this protoplasmic material involves chemical and physical phenomena, and, endowed with united vital forces, organization is promoted. These chemical changes increase in proportion to the growth. Indeed, the cell is the simplest physiological apparatus, and as such is the seat of chemical processes. It is generally conceded that all chemical changes of importance do not take place in the animal fluids, but occur in the cells. The cells regulate by their activities the chemical processes and exchange of foods. In the generating of the tissues of the mouth from the primitive cell the process of segmentation evolves the ectoderm and entoderm, from which springs the mesoderm. Just why these layers of cells, which are seemingly evolved from the same material, should mature different tissues is difficult to understand. All we can say is that there is a different chemical and physical arrangement of the molecules of matter, presided over by existing vital forces.

That vital phenomena have to do with the chemical arrangement of bodies, is exemplified by the experiments of Mr. Rainey

in the processes of calcification. In the formation of enamel or dentine, calcific material is held in chemical combination with the intercellular substance in the vicinity of, and in the enamel organ and dentinal papilla. By the action of ameloblasts and odontoblasts—specialized cells—enamel and dentine are formed. It is by their activities that the lime is deposited chemically as well as physically. An aggregation of cells composes what is termed the enamel organ, and it is said that the function of the enamel organ is the formation of enamel. Strictly speaking, however, it is a matrix to mould the form of the tooth, the performance of function being resident in the ameloblasts. Function is a vital phenomenon; and pathological conditions are perverted physiological phenomena. The difference between these two conditions is an indefinite line wherein the balance of vitality is overcome by perverted function. If tissues are degenerated from their normal tendencies, regeneration balances the waste, but if they are normal it is a physiological process. If, however, the cell destruction is greater than the cell production, regeneration is suspended and atrophy results. Thus we observe that the degree of atrophy is proportionate to the diminution of function. Now we frequently find that teeth have white and brown spots that are congenital. These spots are the result of perverted function of the cells that superintend the deposition of the lime-salts. This perversion is ostensibly caused by starvation or improper metabolism of foods. It would not be entirely amiss to surmise that the white spots were produced by increased function, but limited in the supply of organic materials. In these we find the intermediary organic substance is deficient. The colored spots contain a greater amount of organic matter than the white spots. This may be due to the sluggishness of circulating fluids in the vicinage, resulting in stagnation or lessening of the chemical and physical processes. Thus, while other parts of the tooth are developing, an area of imperfect tooth material is constructed, which is due to the lack of power of the cells which have to do with the building, so to speak. There is a failure of correlation of the organic and inorganic substances, and the tooth becomes more of an admixture than a proper organization.

Notwithstanding criticisms to the contrary, I believe that hæmoglobin and oxyhæmoglobin of the blood and their deriva-

tives, hæmochromogen, hæmatin and methæmoglobin, acting as transudation products, or even the results of decompositions, stain these areas by being incorporated with the material. It is to be remembered that the blood vessels are in close proximity to the ameloblasts, also that these cells are derived from the malpighian layer of cells, which have to do with the pigmentation of the mucous membrane. There is in this a close analogy which may be significant. However, we must rely upon the activities of the blood in the vicinity, for it is the first tissue to exhibit extreme atropic changes. It is necessary to have blood present after the first stages of calcification to further that process. During these preliminary stages the mineral elements may be found in proximity to the developing tooth, and from these the primary deposits may be accrued. The mineral substances are the most essential constituents of the teeth. Phosphate of lime is greater in amount in the teeth than in any other tissue. The consumption of it during pregnancy is often so great that it does not appear in the usual amounts in the excreta, scarcely any trace being found (Lehman). This may account in part for Lehman's declaration that lime salts are deposited mechanically in bones. He gives as proof the ease with which lime salts can be so thoroughly dissolved from bones by hydrochloric acid. The question naturally arises, are mineral substances manufactured within the body? It is established that on the burning of the organic substances the mineral bodies are liberated and eliminated. They, in part, combine with new products of the oxidation and become attached to the organic bodies which are free from salts, and are absorbed from the intestinal canal. Hence it would be seen that a constant supply of mineral substances is not absolutely necessary, and that an insignificant amount of inorganic bodies must be administered. So I wish to agree that, for this scientific reason alone, it is not a necessity to administer constantly foods bearing large quantities of phosphatic materials to develop good teeth. We must rely upon the resiliency of life as the energizing power to create metabolism. Physical forces strive to maintain themselves in equilibrium—thus we have metabolic power. A point of rest, normal state of being, is attained because physical forces act upon matter even if it has attained its equilibrium. Inorganic chemistry also induces motion, and continues active in motion and metamor-

phoses until the closest affinities are satisfied. Albinus established the axiom that the essence of vital force consisted in motion. But if that vital power is by disease deficient, then the metabolism of materials into tooth structure is obstructed, and we see the results in deformed teeth, both as to form and structure. For example, let us suppose that fever disturbs the parturient woman, she is robbed of nutritive power to supply her embryo. Unfortunately nature does not come to the rescue, and, the equilibrium being unbalanced, she is sacrificed at the expense of her general health, and the embryo develops, but less actively. Because of this sacrifice, we seldom witness defective deciduous teeth, and unless the parent recuperates, the disease shows its tracings upon the permanent teeth.

Rachitis and concomitant diseases, affecting particularly the bony structures, are resultant from imperfect metabolism and starvation. The mineral substances leave the body uninterruptedly, in starvation, until death (Hammarsten). The experiments of Chossat and Noit show the loss of weight of bones during starvation to be as high as 17 per cent. in pigeons and 14 per cent. in cats. Blood and its solid ingredients decrease in proportion to the weight of the body. Naturally, then, the teeth, whose development is dependent upon blood, must suffer. It is not necessarily sufficient to argue that the teeth suffer in the same proportion as bones, because one system of organs may derive its nutriment at the expense of another organ, so it is impossible to say the teeth receive their aid from this or that. They do suffer, however, and all the permanent teeth developing whilst in utero show at times marked signs of starvation. The cells, which are the constructive agents of the teeth, may have such environments that the resiliency of their activity is sufficient to controvert the disease; their chemical and physical activities are alert, and extract from other tissues material for a continuance of construction. This seems to be a gift of specialized cells. Phosphate of lime is an important adjunct in metamorphosis of animal tissues, and we receive much of it through our food. The graminivorous animal receives it through the vegetable kingdom, in certain nitrogenous bodies which contain phosphate of lime, as in vegetable albumin, leguin and gluten. Phosphate of lime is not removed from the body until it is partially decomposed or oxidized, and in this pro-

cess phosphoric acid must accrue, entering into union with the lime that enters the body with cereals and leguminous plants.

The New York Herald.

"WHY DOCTORS STICK TO LATIN WORDS." "I don't see," said the man who was leaning against the drug store counter, "why a doctor can't write his prescriptions in English instead of Latin. Suppose I need some whisky on one of these Roosevelt Sundays. Suppose my system absolutely requires whisky; that my health and future usefulness to society depend upon it. Well, I go to my doctor and get a prescription. It calls for spiritus frumenti. Now, that ain't what I want. I want whisky. Why can't he come out flatfooted and say so? But I suppose he thinks that would be giving the game away. I suppose he would rather I'd take his wisdom with a grain of chloride of sodium than with a grain of salt. Isn't that it?"

The druggist smiled and said: "You've got the same idea most people have. You think, I suppose, that the doctor writes his prescription in Latin so it can't be read so easily—so the layman can't steal his trade and learn what he is giving him. But that's all wrong. In the first place, Latin is a more exact and concise language than English, and, being a dead language, does not change, as all living languages do. Then, again, since a very large part of all the drugs in use are botanical, they have in the pharmacopœia the same names that they have in botany—the scientific names. Two-thirds of such drugs haven't any English names, and so couldn't be written in English. But suppose a doctor did write a prescription in English for an uneducated patient. The patient reads it, thinks he remembers it, and so tries to get it filled from memory the second time. Suppose, for instance, it called for iodide of potassium and he got it confused with cyanide of potassium. He could safely take ten grains of the first, but one grain of the second would kill him as dead as a mackerel. That's an exaggerated case, but it will serve for an illustration. Don't you see how the Latin is a protection and a safeguard to the patient? Prescriptions in Latin he can't read, and consequently does not try to remember. Now for a final

reason. Latin is a language that is used by scientific men the world over, and no other language is. You can get a Latin prescription filled in any country on the face of the earth where there is a drug store. We had a prescription come in here the other day which we had put up originally, and which had since been stamped by druggists in London, Paris, Berlin, Constantinople, Cairo and Calcutta. What good would an English prescription be in St. Petersburg?"

"Got any tooth-powder?" asked the man leaning against the counter.

The Dental Record for September, 1895.

"GLASS INLAY WORK," by G. J. Wardill, L. D. S. While in *suitable cases* glass inlays are very satisfactory, there are various things they have an alacrity for—such as floating up and leaving a very visible and very unstable joint of cement; coming entirely out in a month or two; chipping at the edges, etc. I have used the following methods extensively and successfully. A great saving of time and disappointment is effected by having a good space between teeth in the case of approximal cavities, and by seeing the gum well clear of the cervical edge of cavity. In preparing the cavity the walls should be made as square downwards as practicable, to allow of the inlay being plug-shaped, thus reducing the liability to chip the edges, and giving room for roughening. To effect this one has sometimes to line the cavity with osteo and cut to shape afterwards. In making the matrix, the foil should be large enough to be held in position with the finger and thumb, and it should not be allowed to move until quite finished, unless there is necessity for annealing, which is seldom the case; push the foil into the cavity with a square of amadou, and, leaving the amadou in, burnish the foil round the edges of the cavity with a ball-ended filler, after, of course, seeing there is no trace of mercury around, or the whole thing will collapse in firing.

One of the most aggravating tendencies of the whole process is the flying out, or lifting up, of the material in the first drying; this is entirely obviated by mixing the first layer of glass powder with a solution of gum tragacanth. If, from too sudden heating up in the second or third firing, in large inlays, the glass cracks across the middle, throw it away, the matrix is distorted. Always

make some undercut in your inlay with a knife-edge corundum disc. When cementing in, the inlay must be tied down, so draw a piece of ligature silk once or twice across a stick of cement, take a single turn round the tooth over the middle of inlay and pull tight; if much contour on tooth melt a little of the cement on it before pulling on the string, it will then stick easily. Finally, the whole should be covered up. String and inlay with cement run off a spatula.

The College and Clinical Record for September, 1895.

"RICKETS," by C. S. Shaw, M. D., Pittsburg, Pa.; read before the Allegheny County Medical Society. The cause of the great increase of rickets is increased immigration from European countries where it prevails, and the distribution through the Northern cities of the American negro, which followed the abolition of slavery and the close of the Civil War. The geographical distribution of rickets is interesting. It is practically unknown in tropical countries, and is a disease peculiar to the northern temperate zone. But it also has racial preferences. Kassovitz is authority for the statement that eighty per cent. of the children of Vienna are rachitic. It is also very common in Northern Italy, France, Germany, Russia and Great Britain; but, singularly, it is rare among the Irish. It is rare too, in Australia, and essentially absent in China and Japan. The American negro is very subject to rickets—it may be said that every Northern negro child is more or less rachitic. On the other hand, the native African does not suffer from the disease.

This peculiar distribution somewhat obscures the etiology of the malady. The common and doubtless correct opinion ascribes it to malnutrition in the broadest sense of the term. To say that rickets is always a manifestation of congenital syphilis, is untenable. And that it is caused by impure air, is too restricted. Some claim that it is due to a specific germ, and that it is contagious and endemic, but this view cannot be accepted. The disease is most common among the poor children, but is not rare among the well-to-do, and is oftener found in the city than in the country.

The most serious and permanent injury falls upon the bones. The diseased process may be briefly described as an abnormal

elaboration of the cartilaginous or organic part of the bone with a delayed or absent ossification. The normal proportion of earthy to mineral parts in bone, one to two, is sometimes reversed, the organic part being twice as great as the inorganic. The epiphysis of the long bones take on an unusually active cartilaginous growth which results in an enlargement at the extremities; at the same time the bone grows in thickness through the deposit of cartilaginous cells under the periosteum. The usual absorption of bone substances within the medullary canal, which is a step in the normal growth of bone, continues, till in pronounced cases all firmness is lost. The cranium becomes enlarged and approximates a cubical shape from the prominence of the frontal eminences and the centres of the parietal bones. The spinal column is relaxed and the child, if able to sit up, leans forward, simulating kyphosis. The clavicles are always thickened and usually bent. The ribs show a beading at the costo-chondral junctions, the so-called "rachitic rosary." The deformity known as pigeon breast is one of the common results of rickets. Of equal importance is the deformity of the bony pelvis, which, in after life, in females, is a source of suffering and danger. The sacrum projects forward because of the weight of the spinal column, and the weight of the body on the femurs when standing, and on the tuber ischii when sitting, pushes the sides of the pelvis inward so that a section shows a trefoil outline instead of the normal cordate shape. The humerus, radius, femur, and tibia are all thickened and curved. With these changes in the bony skeleton is a relaxation of the ligaments, and a general flabbiness and want of tone in the muscles. The lungs are compressed and contracted, and the heart hypertrophied. The liver and spleen are occasionally enlarged.

The symptoms of rickets vary with its progress. Before the changes in the bones the infant is peevish and cross and dreads to be moved, crying out when taken up, and often throwing off the bed clothes as though the pressure was painful. Though emaciation is not common there is a general feebleness. The head sweats profusely, the appetite is capricious, and the sleep is broken. Evidences of gastro-intestinal catarrh are present, and bronchial irritation usually exists. Bone involvement soon occurs, first appearing in the tibia and radius. While rickety children are probably more prone to general convulsions than healthy

ones, the liability is greatly exaggerated, the proportion who suffer is small, and in these the spasm may usually be traced to some other causes. One of the invariable symptoms is delayed dentition. The teeth are slow to erupt, but when they do come they are not imperfect and prone to early decay, as is commonly stated. The protuberance of the abdomen and the lower portion of the liver are due to the flabby muscles and to the presence of gas in the intestines.

Pure air, cleanliness, and especially proper food, are essential to a cure for rickets. Most cases are due to defective diet, and the defect is usually a lack of fat in the food. Of medical agents codliver oil holds the first place. When it cannot be borne by the stomach it may be used by inunction with the utmost satisfaction. Indeed, the rubbing and massage incident to this use of the oil is of distinct value. Olive oil or cocoa butter may be substituted for the codliver oil in inunction, and in my experience these have been equally of value. Kassovitz claims a specific power for phosphorus, which he gives in doses of about 1-125th of a grain dissolved in olive oil.

The British Journal of Dental Science for September, 1895.

"ORAL SURGERY," by Edmund W. Roughton, B. S., M. D. (Lond.), F. R. C. S. Eng. Periostitis of the Jaws. The periosteum of the jaws, in addition to covering the surface of the bones, affords a lining to the sockets of the teeth known as the periodontum, pericentum, or alveolo-dental membrane. It is convenient to limit the term *periostitis* to inflammation of the periosteum covering the surface of the bones, and to apply the term *periodontitis* or *pericementitis*, to inflammation of the alveolo-dental membrane.

Periostitis. *Varieties.* Periostitis may be *acute* or *chronic*; *circumscribed* or *diffuse*; *osteoplastic* or *suppurative*; it may also be due to a number of different causes.

Causes. These may be divided into local and general. *The local causes* are injury, such as blows, wounds and fractures, and extension of inflammation from the adjacent bone (as in alveolar abscess), or mucous membrane (as in ulcerative stomatitis). *The general causes* include syphilis, struma, gout, rheumatism, certain exanthematous fevers, such as scarlatina, measles and variola, and the excessive use of certain drugs, especially mercury.

Pathology. The pathological changes are simply those of inflammation; the outer fibrous layer swells and becomes redder than natural, whilst the cells of the osteogenetic layer proliferate and loosen the attachment of the membrane to the bone. The inflammation may terminate in *resolution*, or may go on to the formation of an *abscess* between the periosteum and the bone. Suppuration most often occurs in acute periostitis, especially when of septic origin, but it may also follow chronic periostitis in persons whose health is undermined by syphilis or tuberculosis. Periosteal suppuration often leads to *necrosis*. Chronic periostitis in an otherwise healthy person usually leads to the deposit of new bone in the shape of *node*.

Symptoms. In the majority of cases of *acute periostitis*, the symptoms will have been preceded by those of periodontitis, in connection with a decayed tooth which has started the mischief. When the inflammation has reached the surface periosteum, considerable swelling of the gum ensues, accompanied by very severe pain. The swelling is at first hard to the touch and extremely tender, but soon softens in its center from the formation of pus; the face becomes swollen and red. The local condition is usually accompanied by general febrile symptoms, the temperature is raised, the tongue furred, the appetite lost, the bowels confined, etc. The subsequent symptoms will depend upon the course of the disease; if resolution occur, the local and general symptoms gradually subside, but if the inflammation goes on to suppuration or necrosis, a further train of symptoms ensues.

In *chronic periostitis* there are usually no febrile symptoms, and the local signs are limited to the formation of an indolent swelling on the surface of the jaw, usually causing more or less aching pain, worse at night. Chronic periostitis is most often syphilitic in origin, but may be due to any of the causes mentioned above. In diagnosing a case of periostitis of the jaws, it is necessary to discover the cause, as well as the nature of the affection; with this object the history of the case should be carefully gone into; and signs of disease in other parts of the body looked for.

Treatment.—First remove the cause of disease when possible; then allay the inflammation to prevent its leading to suppuration and necrosis. In most acute cases the cause will be found in a carious tooth; then determine whether to extract it or whether it

can be rendered innocuous. On this point the dentist and general surgeon do not always agree, the former endeavoring to save a tooth which should be extracted, and the latter erring in the opposite direction, therefore a consultation should be held. The most efficient way of allaying the local inflammation and preventing its evil effects, is to make a free incision through the inflamed part right down to the bone. When the swelling is acute and of any considerable amount, this should always be done whether pus formed or not, the relief of tension and the local blood-letting thus obtained have the most beneficial effects. The incision should be followed by the use of a warm antiseptic mouth wash. A saline aperient followed by a tonic is usually required. In chronic periostitis the cause is more often a constitutional one, such as syphilis, and therefore more benefit accrues from appropriate constitutional treatment than from local remedies, yet it is important in every case to see if there is any source of local irritation.

Periodontitis. This may be *local* or *general*—*i. e.*, it may effect one socket or many; either variety may be *acute* or *chronic*. *Acute local periodontitis* is usually due to the escape of septic matter (bacteria) from the pulp through the apical foramen, setting up acute inflammation in the tissues occupying the apical space. The inflammation usually goes on to suppuration, but may become chronic or may undergo resolution; it may remain localised to the dental periosteum, or may extend to the bone and to the surface periosteum, producing conditions already described.

Symptoms.—The affected tooth is slightly raised in the mouth and feels uneasy, but at first the uneasiness is relieved by biting; soon the surrounding gum becomes red, swollen, and tender, and the uneasy sensation is replaced by actual pain, which is of a constant gnawing character and is no longer relieved by biting; if suppuration occurs the swelling increases, and the pain becomes throbbing in character.

Treatment.—The offending tooth must be removed, or suitably dealt with. A free incision should be made over the swelling, and the mouth repeatedly rinsed with a warm antiseptic wash. In slight cases where there appears to be no risk of suppuration, the gum may be painted over with a mixture of equal parts of liniment of iodine, tincture of aconite, and chloroform. The bowels

should be freely moved by a saline aperient and a tonic, preferable quinine, prescribed.

Chronic local periodontitis may follow the subsidence of an acute attack, or may be chronic from the first. It is usually caused by some morbid or abnormal condition of the tooth, but it is predisposed to by struma, syphilis, rheumatism, etc. The chief *symptoms* are looseness of the tooth, tenderness on percussion, and a dull, gnawing pain. The general health and the offending tooth should both be treated.

Acute general periodontitis is usually associated with periostitis of the surface of the jaw; it may be due to injury (especially septic wounds), to the effects of mercury or phosphorus, to blood dyscrasie, such as syphilis, struma, and rheumatism, or it may follow upon scarlet fever or other exanthemata. It is very apt to produce necrosis.

Chronic general periodontitis is usually of the suppurative variety leading to exudation of pus around the necks of the teeth, a symptom known as *pyorrhœa alveolaris*. Many authorities regard pyorrhœa as a disease, but it is in reality only a symptom. There are two varieties of chronic general periodontitis, and they both cause pyorrhœa. (a) *Calciæ periodontitis* is due to the irritation of calculous deposit on the teeth; the calculus may be derived from the saliva (salivary), or from serum exuding from an inflamed gum (*serumal*). Salivary calculus is found most abundantly in the neighborhood of the openings of the salivary ducts—viz., on the lingual aspects of the lower incisors, and on the buccal surface of the upper molars, but may spread to other parts; it acts as an irritant leading to inflammation and gradual destruction of the gum, the peridental membrane and even the alveolar wall; in this way the teeth gradually loosen and fall out. Serumal calculus is found most frequently on the necks of the teeth, hidden under the margin of the gum, its distribution not bearing any relation to the openings of the salivary ducts; it is generally in the form of little nodules, or a hard crust of brownish color firmly adhering to the tooth; it is very irritating and produces chronic inflammation and destruction of the peridental membrane. As the peridental membrane is detached and destroyed, the alveolar wall is slowly absorbed, and the gum recedes, exposing the calculus to view, but the destruction of gum tissue is not so marked

as in the case of salivary calculus. With both kinds of deposit the gum is apt to be spongy and to bleed readily, and pus exudes on pressure being made with the finger. The treatment of calcic periodontitis consists in extracting those teeth which are hopelessly loosened, and in removing the calculus from those which can be saved. (*b*) *Phagedenic periodontitis* differs from the calcic variety more in its cause and mode of progress than in its ultimate result; whereas in the calcic variety the destruction seems to be due to the irritation of the deposit, in the phagedenic variety the destructive inflammation seems to depend chiefly on the action of micro-organisms. The mouth always contains myriads of bacteria, many varieties of which are capable of setting up destructive inflammation in any tissue of lowered vitality, but so far as is known, there is no specific organism for phagedenic periodontitis. Some authors have assigned a large share in the etiology of this disease to gout, but apparently without sufficient reason. Although the same parts are destroyed in the calcic as in the phagedenic variety of this disease, there is an important difference in the extent and mode of progress of the destruction, for whereas in the former disease the destruction of tissue is co-extensive with the deposit of calculus, in the latter the periodontal membrane is the part primarily affected, and its destruction takes place in an irregular manner, so that deep, sinuous pockets are formed which may extend right up to the apex of the root. Many cases are complicated by calcic deposit, but in them the pockets extend far beyond the line of deposit; in some cases there is no calculus present. The absorption of the alveolar margin follows very closely, and seems to be dependent upon the destruction of the periodontal membrane; where absorption is taking place the margin of the socket is often everted and thickened. Ultimately the tooth becomes completely loosened from its attachments and drops out, the alveolus disappears and the disease reaches its natural termination. The disease is undoubtedly infectious in that neighboring teeth become affected, but whether it can be conveyed from one person to another is not yet definitely determined.

Treatment.—All trace of calculus should be very carefully removed. The pockets should be syringed out daily with a solution of perchloride of mercury in peroxide of hydrogen of the strength

of 1 grain to the ounce; when the pockets are deep and sinuous they may be opened up by an incision through the gum. When the alveolar margin is much thickened or everted, it may with advantage be cut away.

Acute Alveolar Abscess.—When pyogenic bacteria escape from the apical foramen and set up inflammation which goes on to suppuration, the result is an alveolar abscess. There are other causes, such as a suppurating dentigerous cyst, which may lead to the formation of pus in or near the alveolus, but it is well to limit the term "alveolar" to the abscesses directly due to suppurative apical periodontitis. The pus is at first confined within the apical space under considerable pressure, the result being that the surrounding bone undergoes absorption, the process being rapid in the cancellous tissue but receiving a temporary check when the compact bone is reached; thus it happens that a cavity of some size may be formed within the alveolus before a vent is established. The interior of the abscess cavity is lined by the swollen and softened peridental membrane loosened from its bone attachment, but still adherent to the root of the tooth, forming the little pus-sac often seen attached to the extremities of teeth extracted for this condition. Obedient to the law that pus travels in the direction of least resistance, the abscess in most cases penetrates the outer lamina of compact tissue, for that is the thinner of the two, and so comes to point upon the buccal aspect of the jaw. The invasion of the soft tissues covering the bone is accompanied by considerable inflammatory œdema extending to the mucous membrane of the mouth and the tissues of the cheek. The pus travels rapidly through the softened tissues and evacuates itself inside the mouth or upon the face. In cases of acute alveolar abscess the opening is usually through gum immediately over the affected root, but sometimes the periosteum becomes extensively separated from the bone, the pus accumulates between the two and eventually finds its way to the surface at the margin of the gum; such extensive detachment of periosteum is very apt to lead to necrosis of the underlying bone, especially in the case of the mandible; it is this class of abscess which is particularly prone to point upon the face, the opening being just below the chin when the trouble has started from one of the front teeth, or at the lower border of the cheek when in connection with a molar. Such abscesses, when starting

from an upper incisor, not infrequently burrow beneath the periosteum of the palate, producing a soft hemispherical swelling; in these cases the pus has not the same tendency to escape at the margin of the gum, probably owing to the greater thickness and closer attachment of the muco-periosteum to the bone. Despite the extensive detachment of periosteum, necrosis of the palate is not so frequent as might be expected, the bone being able to maintain its vitality by the blood supply it derives from its nasal or antral aspects; but extensive necrosis does sometimes occur. An abscess in connection with the buccal roots of an upper molar may burrow between the periosteum and the bone and open upon the cheek just under the malar prominence. In another class of cases the pus may travel directly into a neighboring cavity, such as the nostril or antrum. In a few cases the pus finds its way to the surface along the side of the tooth, traveling between the latter and its socket.

Symptoms.—The symptoms of acute alveolar abscess are always preceded by those of acute local periodontitis already described. With the onset of suppuration the pain becomes more severe and of a throbbing character; the severity of the pain is due to the great tension under which the inflammatory products are pent up. The gum over the affected tooth becomes red, swollen and tender to the touch; the face is at first not much swollen; the submaxillary lymphatic glands are often enlarged and tender. Accompanying the local symptoms there is often great constitutional disturbance, the temperature rising perhaps as high as 103 deg. or 104 deg. F., and being attended by febrile symptoms of proportionate severity. When the pus escapes from the bone the pain abates considerably but does not cease; the swelling of the gum increases and softens at its most prominent point, and if large enough fluctuates; the swelling of the face increases very much so that the features may be greatly distorted. When the abscess bursts or is opened all the symptoms abate very rapidly, the fever subsides, the pain stops, the swelling of the face goes down and the gum reverts to its normal condition with the exception of a small opening through which pus continues to exude for a longer or shorter time; under efficient treatment the discharge soon ceases, but if the source of irritation remains the discharge becomes chronic. It must be borne in mind that although the

great majority of cases terminate favorably, even when untreated, yet a few cases are attended by disastrous and even fatal results. The submaxillary glands may suppurate, especially in strumous subjects, leading to serious illness and much subsequent deformity from scarring. The pus from an alveolar abscess may wander into the pterygoid region, there causing septic thrombosis, which may extend through the foramina at the base of the skull to the cavernous sinus. Pearce Gould records such a case which proved fatal. Howse records a case of pyaemia following on an alveolar abscess of the lower jaw in a child, and Arbuthnot Lane records another case with pyaemic thrombosis of the veins of the neck terminating fatally. Heath mentions two cases of diffuse cellulitis of the neck leading to fatal oedema of the larynx.

Treatment.—Two indications must be fulfilled: (*a*) The pus must be evacuated; (*b*) the cause of the trouble (the septic matter in the pulp-chamber and apical space) must be removed. (*a*) In cases which come under the care of the dentist before swelling of the gum has occurred, the pulp chamber should be opened, the root-canals cleared out, and the pus evacuated through the tooth. When the pus has perforated the external plate of the jaw, and has formed a swelling on the gum, the latter should be freely incised, the incision being carried if possible through the bony wall of the abscess. Collections of pus beneath the periosteum of the palate should be freely and early incised so as to diminish the risk of necrosis. Every means should be taken to prevent the formation of an opening on the face; the external use of poultices and fomentations should be strictly forbidden; even when the skin is reddened, and pointing on the face seems inevitable, this untoward result may often be averted by painting the surface with flexible collodion, and making a free opening in the mouth. In the event of suppuration extending to the cellular tissue of the neck, free incision should be made, having due regard to the anatomical position of important structures. Oedema of the larynx would necessitate scarification of the aryteno-epiglottic folds, or laryngotomy. The only effectual treatment of pyaemic thrombosis, is to dissect out the affected veins; this must be done as soon as possible, or the process may have extended beyond the reach of surgical interference; this was done by Mr. Arbuthnot Lane in the case mentioned above, but unfor-

unately too late, the septic matter having already become disseminated throughout the circulation.

(b) The best way of removing the septic matter from the pulp chamber and apical space will vary in different cases. If the tooth in question is one which cannot be rendered useful if retained, the sooner it is extracted the better. If on the other hand the tooth can be rendered useful, although dead, it should be saved, provided the patient can obtain efficient and appropriate treatment at the hands of a dental surgeon. The object of such treatment is to render the pulp cavity and apical space aseptic.

The Dominion Dental Journal for September, 1895.

"EPULIS," by A. H. Beers, M. D., D. D. S., L. D. S., Cookshire, Que. This diseased condition is not foreign to the practice of dentistry, as the tumor is frequently met with in ordinary practice. The term epulis is applied to various tumors of the gums. In reality they are not connected with the gums, but with the periosteum of the alveolar process, especially that part intimately connected with the teeth. Two forms of this tumor are usually described: simple, or the fibrous variety; and the form that contains myeloid elements and is considered as a malignant type. The former is the more common and is seen as an enlargement of the natural fibrous tissues of the gum. It is covered with mucous membrane continuous with that of the gum, but from various mechanical causes—such as the teeth, tongue, etc.—is liable to become inflamed and ulcerated, and thus simulate a malignant growth. Occasionally this growth presents ossified parts, and in this respect differs from the myeloid variety, which never ossifies. Spiculae of bone may be prolonged from the maxilla into the fibrous variety. It may grow between teeth and gradually force them apart as it increases in size, and produce great disfigurement. The myeloid form is much more vascular and increases in size more rapidly. It frequently exhibits itself as a large fungating growth, and is always more serious in nature and more apt to occur after removal.

The treatment of these two forms amounts to about the same thing—that is, entire removal of tissues that surround the growth. Its occasional appearance in apparently edentulous jaws will be found, on close examination, to be due to overlooked roots of

teeth, as a rule. Its occurrence is dependent upon the presence of teeth. Nothing short of the entire removal of the tooth or teeth, and bone that is contiguous will ever effect a cure. I lately saw a case that had been treated by a medical gentleman. He merely snipped the pedicle six times and it always came again. The cause was an irritating left lower cuspid, and the growth extended from the right lower incisor to the second molar. The growth was indented by the teeth, and consequently ulcerated. The breath was extremely fetid, and signs of constitutional disturbance present. The growth was, roughly speaking, the size of a hen's egg, but more flattened, of course. It was simply fibrous and of slow growth, but was ulcerated from indentation of the upper teeth. The continual absorption of pus would naturally account for constitutional disturbances.

I saw a case in a young girl, aged 17, which I will try to report. January 20th.—Came complaining of swelling on inner right side of alveolar process of upper jaw and in region of molar teeth; frontal headache and general weakness. Patient first noticed swelling seven months ago, and supposed it to be a "gum-boil." The swelling was lanced by a dentist, and after a few days was "removed." It recurred in a month. Two months later it was removed with a *dens sapientia*, which had partly cut through the gum. Soon after this the tumor reappeared and increased to the size in which I saw it—that of a walnut. Movements of the tongue and eating caused slight bleeding. Her father and mother are alive and healthy. Twelve brothers and sisters died in infancy; two brothers and one sister alive and well. One uncle has benign growth on chin. Grandmother dying with cancer of rectum. The patient is a tall and very well nourished girl, and is otherwise healthy, as was proved from physical examination. The right tonsil and pharynx and surrounding mucous membrane are injected; growth bleeds readily on slightest irritation. January 25th.—Patient etherized. Mouth forced open and kept so with gag. Second right upper molar removed, and most of the growth which was adhering to the dental periosteum came away with the tooth. Remainder of growth and part of alveolar border of jaw cut away with forceps. January 26th.—Tissues in neighborhood considerably swollen. A mouth-wash (warm) of boracic acid given. January 27th.—Swelling considerably reduced. Diet,

beef-tea and milk. January 30th.—Patient discharged, with wound in healthy condition. February 18th.—Patient was seen again, with recurrence of growth, probably due to incomplete removal and originating from some part left behind in the former operation. Under ether, the first upper right molar was removed and alveolar process removed with bone-forceps. Roots of tooth were very divergent, and much difficulty was experienced in removing it entire. The growth was examined microscopically and found to be a simple fibrous tissue growth. The patient after six months has had no recurrence.

Zahnärztliche Rundschau for September, 1895.

"**IODOFORMIN (ODORLESS IODOFORM)**," by Dr. Max Bejach, Berlin. While up to the present time all attempts to rid iodoform of its offensive smell by a substitution of powerful deodorizers and strong-smelling substances, such as coffee, tonka-bean, rose-oil, or by mixing bituminous material with the iodoform, have yielded no pronounced results, it has nevertheless been apparent that it could be accomplished by some other method.

There has recently been placed on the market a new preparation by the name of *iodoformin*, which is an absolutely odorless chemical compound containing 75 per cent. of pure iodoform. It is a dust-fine white powder, which on exposure to light readily turns to a yellow hue, and when in combination with acids or alkalis the iodoform readily separates and antagonizes the union. The same liberation of iodoform is also observed when iodoformin is applied on wounds which secrete freely; but when the wound-fluid ceases to flow and the healing process begins, the odor peculiar to iodoform disappears. So that in the latter stages of the healing the applied iodoformin yields no disagreeable odor.

The clinical experiments conducted hitherto on iodoformin have evolved, aside from its lack of odor, the following favorable results: the prompt cicatrization of the wound without producing an eschar, and the accomplishment of perfect dessication of the wound:

The International Dental Journal for September, 1895.

"**A PLEA FOR MODERATION**," by Dr. B. Holly Smith, Baltimore, Md.; read before the Odontological Society of Pennsylvania, March 9, 1895. It seems to me we must limit preliminary require-

ments both as to subjects and amount; plainly to such subjects alone as are needed for the practical work in lecture-room and office. We have nothing to do with those ornaments and embellishments which are the flowers of culture. We do not dispute that the moral effect would be greater if every dentist were also a savant, but would the real pain-alleviating power of the profession be increased? As dentists, I take it, the degree of man's ornamental culture does not concern us, but the quality and quantity of his necessary scientific and professional knowledge, and that only so far as it is a protection and guarantee to the profession against ignorance and quackery. We may resolve that it is a most creditable thing to know Latin, but can we legislate that one cannot be a dentist unless he does know Latin?

Now as to lengthening the time of study in dental colleges. I simply think we are not at present prepared to do it. *Reasons.*—

1. The dental profession through its institutions of education is already fully abreast of the other professions in its requirements.
2. There is no necessity of overlooking the educational influence of the dental journal, nor of expecting that every student who emerges from a dental school should have a finished education; he is only to be equipped with the knowledge which will enable him to grapple with the problem of his professional life; and there will still be much that can be acquired in no other way than by contact with his brethren of the dental profession and in the actual handling of a practice. If we carefully fit good men to profit by these larger opportunities, have we not fulfilled our mission as teachers?
3. We have no right to refuse to recognize the opportunity to establish post-graduate schools, whose influence would benefit in broadening and deepening the culture of the few who could afford these privileges. All schools and all students should not be required to go so far; it would work an injustice and cause the arrest of many a career.
4. We cannot afford to limit the number of those entering our profession to such as are sufficiently well off in this world's goods to give so extended a time to preliminary training; they are too few.
5. Experience teaches that a man too long kept in leading-strings—that is, under the guidance and direction of teachers beyond the period of greatest enthusiasm and activity—is forever handicapped. The difference in the two methods may be readily seen by a comparison between

the practical efficiency of our own dentists and those of Germany, where preliminary training is carried to its ultimate conclusion. But beyond and above all am I unalterably opposed to any measures designed to prohibit young and reputable men from entering upon the study of this profession simply as a protection to ourselves.

Discussion. Dr. Henry Leffmann. I think that a college education or classical training is a very good thing for a dentist, for while it is a very easy thing to say that a man may be a good dentist and yet not be able to read Latin, at the same time, in the course of his study of Latin and other collegiate branches, his mind becomes so developed that he makes a better dentist. Appearing before the community as a profession, it is important that the merely practical phase ought not to be given so large a place. Dentists want to be more than simple repairers of teeth and manufacturers of artificial dentures; they want to carry a degree which is a degree of honor; they want to take rank as educated men; and so the colleges ought to insist upon some preliminary requirements other than those merely of the lowest school grade. I do not think the dental course should be extended to four years, but the preliminary requirements should be very decidedly raised.

Dr. Bonwill. If I had been obliged to understand Latin and Greek I would never have been a dentist to-day, although it is a splendid thing to know them in order to understand the derivation of words if for nothing else, but a man must have mechanical genius. There should be no extension in the period of tuition, with a man of genius it becomes unbearable. Only by getting into actual work and coming in contact with older practitioners will he be fully equipped to do his work. Further, there should be no such thing as a post-graduate course, as the colleges are supposed to have the best teachers procurable, and in setting up a post-graduate course it is a reflection on the present institutions of learning.

"SYPHILIS, WITH SPECIAL REFERENCE TO THE RELATIONS OF THE DENTAL PROFESSION TO THE DISEASE," by Henry A. Pulsford, M. D.; read before the Central Dental Association of Northern New Jersey, June 10, 1895. There are very few busy dentists who do not unwittingly treat at least one syphilitic in the course of

each year of practice. The disease is an extremely common one. In the practice of skin-specialists about one-tenth of all the cases seen are forms of syphilis, and in order of frequency it stands third upon the list of skin-diseases. As it is contracted by the rich and intelligent almost as often as by the poor and ignorant, you are always liable, no matter among what class you practise, to be called upon to treat some person who carries in his mouth the poison of the disease. If he happen to infect you, it means at the very least two years' abstinence from professional work, to say nothing of the social and domestic privations such as infection necessarily imposes. If, through you or your instruments, he infect one or more of your patients, it means great and possibly irreparable injury to you and to your practice. It should therefore be of the utmost interest to you as dentists to have accurate information about this disease.

Syphilis is a chronic infectious disease, produced by a specific poison which, in all probability, is a bacillus closely resembling that of tuberculosis. Inoculation with this virus causes a speedy saturation of the whole system with the disease, and, except for the transient local reaction at the site of the inoculation, the malady in its subsequent course shows all the characteristics of a general constitutional disease. Syphilis may be acquired in several different ways: The germs may be deposited upon an abrasion, wound, or other solution of continuity of skin or mucous membrane. In the case of a woman impregnated by a syphilitic, they may enter the system through the placental circulation. The child begotten by a syphilitic father is usually syphilitic, and a syphilitic mother generally bears a syphilitic infant. The germs of syphilis are present in the discharges from all the early eruptions and ulcerations, and in the blood, lymph, semen, and ova of those passing through an active stage of the disease. Infection through the unbroken epidermis, either of the skin or mucous membrane, is impossible. "The venereal disease" *par excellence*, syphilis, is usually acquired during sexual intercourse. Liability to the disease is practically universal, the only known immunity being that conferred by the disease itself, which protects the individual against a second attack.

After the expiration of a more or less definite period of incubation, infection with syphilis is followed by the development,

at the site of the inoculation, of the "initial lesion" of the disease. This is first seen usually as a hard, painless papule, which soon breaks down into a shallow ulcer, secreting a scanty discharge, and causing considerable induration of the surrounding tissues. Such are the typical characteristics of the dreaded "hard chancre." The formation of this apparently trifling ulcer is a sign that the whole system is already hopelessly infected, and no local treatment, however heroic, can prevent the further development of the disease. Coincident with the appearance of this ulcer occurs the enlargement of the neighboring lymphatic glands, and within a short time a similar condition of all the glands of the body, together with the establishment of certain moderate constitutional symptoms, furnishes abundant proof that the disease has indeed become general. The eruptive period of syphilis follows the appearance of the initial lesion in from three to twelve weeks. It is ushered in by moderate fever, headache, pains in the joints and bones, and much general malaise. These symptoms are immediately followed by the appearance of an eruption occurring usually simultaneously on the skin and mucous membrane. The first eruption is commonly very superficial, consisting of spots of localized hyperaemia, like those of measles. It soon fades away, to be followed in the course of a few weeks by a second eruption, generally of a papular form. This in turn disappears, giving place, in a longer or shorter time, to still another and severer form of eruption. Thus the disease goes on, gathering strength as it develops, until the climax of the eruptive period is reached in a general eruption of postules or boils, which may be so severe that small-pox, as its name implies, is trifling in comparison. In the course of the eruptive period, which often lasts two or three years, there also occur many other manifestations of the disease. The general health fails, there is anæmia and loss of flesh and strength, there are ulcerations of the various mucous membranes, the hair falls out, certain diseased conditions of the eyes and ears may develop, and the bones and joints may become affected. After the second or third year there is often a decided lull in this storm of symptoms. Sooner or later, however, the disease again makes its presence and power felt by newer and severer manifestations. These, the so-called *tertiary* or *late* lesions of syphilis, differ decidedly from those which occur in the eruptive stage. They are

rarely general in distribution, being confined¹ to a limited portion of the body; they are extremely chronic, each distinct attack lasting for months or years; they often spread slowly, in a serpiginous manner, from the point at which they start; they rarely secrete infectious discharges; they often cause extensive destruction of the tissue which, occurring in important organs, may occasion a fatal issue; they are more likely to attack deep-seated structures and vital organs than are the lesions of the eruptive period. Fortunately for the many persons who contract syphilis, it is no more necessary for them to experience all the possible lesions of the disease than it is for a guest at a fashionable hotel to partake of every delicacy on the bill of fare. The majority of syphilitics have, besides their chancre, two or three moderately severe eruptions, a partial loss of hair, several ulcerations in the mouth or throat, and one of the slight or moderately severe late lesions. When properly treated from the first, the disease usually runs a rapid and benign course, leaving its victim somewhat impaired in health, to be sure, but only exceptionally a physical wreck or chronic invalid.

The foregoing brief sketch will give you some idea of syphilis as it is seen by physicians. Dentists, in the practice of their profession, naturally see much less of the disease; but that they have occasional opportunities for observing many of its characteristic lesions there can be no question. On the lips they may possibly see the initial lesion; for, although of rare occurrence, chancre of the lip is the most common of all extragenital chancres. More rarely still they may meet with a chancre of the tongue, of the tonsil, or of some part of the face. The characteristics of all these lesions are similar in whatever locality they occur. The ulcer may be as small as that of the ordinary chapped lip, or it may be as large as an inch in diameter. The most constant characteristics of the syphilitic chancre are the parchment-like induration of the underlying tissues and the painless enlargement of the nearest lymphatic glands. In the eruptive period the dentist may see such of the eruptions as occur on the head and neck, the ulcerations and eruptions in the mouth and nose, and the diseases of the eyes. One of the most typical of the facial eruptions is the so-called "corona veneris," a well-marked semicircle of large papules crowning the forehead just below the line of the hair. The presence of this eruption, with a decided thinning of the hair on the

sides of the head, is pretty strong proof of syphilis. Another characteristic manifestation of syphilis which a dentist may see is the "angina syphilitica," or syphilitic sore throat. It is a vivid, raw, ham-colored hyperæmia of the pharynx, tonsils, and soft palate, which is limited by a definite margin, especially well marked just above the uvula and the free border of the soft palate. Portions of the inflamed areas may be coated with a grayish layer of dead epidermis, or even superficially ulcerated. The most common locations for the oral ulcerations of this disease are the angles of the lips and the tip and margins of the tongue. Associated with these ulcerations, or occurring independently of them, may often be seen red spots, generally circular in shape, having sharply-defined edges, and flecked with a grayish deposit of epidermis. All syphilitic lesions of the mouth seem more apt to occur upon parts subject to continual irritation, such as that produced by a cigar or pipe, by a plate for artificial teeth, or by the roughened edges of broken or carious teeth. Clean and well-kept mouths are less liable to these complications than are foul and neglected ones. The most common oral lesions of late syphilis are perforations and destruction of the hard and soft palates. They are almost always accompanied by a very offensive nasal catarrh. Deep ulcerations of the tongue and tonsils may also occur in this stage. It is always satisfactory to remember that the discharges from all these destructive ulcerations are usually quite harmless, and incapable of producing the disease in another person.

Not the least of the dangers of syphilis are diagnostic difficulties which it offers even to the experienced physician. The most innocent-looking lesions sometimes prove to be syphilitic, and the most suspicious in appearance frequently turn out to be harmless. A dentist finding himself face to face with a syphilitic patient who needs dental treatment has two courses open to him: he may refuse to take the case, or he may accept and treat him just as he would anyone else. He may urge that he is justified in refusing to treat syphilitics simply because of the personal risk incurred. This is perfectly true, but the risk cannot be altogether avoided by refusing to treat known syphilitics, since, as a class, they need a great deal of dental treatment, and they generally contrive to get it, and where the dentist does not suspect the disease he is naturally more or less off his guard. That a dentist

ought to refuse to treat syphilitics from fear of infecting other patients is a good pretext, but, the same as with the personal risk, it cannot be altogether avoided by refusing such cases. Besides, in these days of wide and growing knowledge of germs and germ-diseases, when we all know that the mouth is a perfect hot-bed of bacteria, a dentist is surely not guiltless if he fails to take the simple precautions which will make it almost impossible for him to carry any germs whatsoever from the mouth of one patient to that of another. A dentist who always thoroughly cleanses his hands and sterilizes his instruments before working upon each patient runs very little danger of transmitting syphilis or any other infectious disease. Another argument against the treatment of syphilitics is the "social morality" argument. Some "good" people argue that, as syphilis is invariably contracted through gross immorality, it is the duty of every true Christian, whether he be dentist, doctor, or preacher, to prevent the wretched sufferer from obtaining the slightest comfort or relief under this visitation of a justly incensed Providence. Of course, this is all nonsense. A syphilitic is very rarely a more grossly wicked man than the majority of his fellows, and the innocent are often accidentally affected, while the licentious-lived ones escape. Even if we should all unite in refusing to treat these troubles, we should not only fail to advance the standard of social morality, but would inflict untold suffering upon countless innocent persons. Every syphilitic is a centre of infection, and carries with him possibilities of infinite mischief to his fellows. Let the clergy do their part in preaching sexual purity to the people; but let us also do our part, which is the curing and exterminating of these diseases.

In the scientific treatment of syphilis the dentist may, if he will, play a very helpful part. If all things were done as they should be done, the first step in the treatment of a syphilitic would be to send him to a dentist to have his teeth and mouth put in as good a condition as possible. This can in most cases be done before there are any infectious lesions in the mouth. Then, when the physician comes to put his patient through the courses of mercurial treatment, which are so essential to a thorough cure, there will be little danger of the occurrence of salivation or stomatitis, which check treatment and make the remedy seem as bad as the disease. When the ulcerations attack

the mucous membranes, there will be no severe lesions in the mouth from carious, jagged teeth. In short, if a syphilitic has a mouth filled with smooth, clean, healthy teeth, it is easy to cure him; but if his teeth are dirty, ragged and carious, his cure is always difficult, and sometimes impossible. If dentists as a class refuse to do their small but important part in the treatment of syphilis, they are working against those who are trying to exterminate this horrible disease. If they wish to help us who are doing our best to rid society of this scourge, they will put to one side all thought of personal risk, and, confident in their knowledge and skill, will cheerfully undertake and accomplish their share in the good work.

The Dental Review for September, 1895.

"THE MAKING OF ALLOYS FOR DENTAL AMALGAM," by Dr. J. O. Brown, Chicago; read before the Hayden Dental Society. When one of the metals composing an alloy is mercury, the combination is called an amalgam; hence, the difference between an alloy and an amalgam is, an alloy is a combination of two or more metals fused together by heat, while an amalgam is an alloy having mercury as one of its constituents. Amalgam was first brought into use as a tooth filling material and advocated by one M. Taveau, of Paris, about the year 1826, and was called by him "Silver Paste." This metallic preparation was first brought to the notice of the dental profession in the United States about 1830, by the advertisement of two Frenchmen by the name of Caw-cour. It was called by them the "Royal Mineral Succedaneum," succedaneum meaning a replacer or substitute. From the advent of the Frenchmen and the introduction of their "succedaneum" until about the year 1850, was what is known as the "amalgam war," which was waged pro and con among the members of the dental profession, resulting in personal enmity in some cases, in the disbandment of some of the societies, and lastly, but by no means the least, it provoked hard study, exhaustive researches and experiments which have proven of much and lasting good to suffering humanity.

The different metallic substances contained in the many alloys of today are: Tin, silver, gold, platinum, copper, zinc, cadmium, antimony, aluminum and aluminum bronze, and in some a mere trace of palladium. The first alloy used in this country was the

"Royal Mineral Succedaneum," which was silver coin filings, and was of silver 90 per cent, copper 10 per cent. I will give a qualitative chemical analysis of the different metallic compounds contained in alloys. 1st. *Tin*.—Symbol, s. n., Latin name, stannum, equivalence, II. and 4; specific gravity, 7.29 to 7.30; atomic weight, 117.7; revised weight, 117.698; fusing point, 442 deg. F. (According to some, 458.6 deg. F.) 2d. *Silver*.—Symbol, Ag.; Latin name, argentum; equivalence, 1 & 3; specific gravity, 10.40 to 10.57; atomic weight, 108; revised atomic weight, 107.675; fusing point, 1873° F.; expands on solidifying. 3d. *Gold*.—Symbol, Au.; Latin name, aurum; equivalence, 1 & III.; specific gravity, 19.26 to 19.34; precipitated gold, 19.49; atomic weight, 196.2; revised atomic weight, 196.155; fusing point, 2016° F. 4th. *Platinum*.—Symbol, pt.; Latin name, platinum; equivalence, II. & 4; specific gravity, 21.50; atomic weight, 197; revised atomic weight 196.700; fusing point above 3500° in oxyhydrogen flame or coal gas and oxygen flame. 5th. *Copper*.—Symbol, cu.; Latin name, cuprum; equivalence, (cu 2) & II.; specific gravity, 8.914 to 8.952; atomic weight, 63.2; revised atomic weight 63.173; fusing point, 1996° F. 6th. *Zinc*.—Symbol, zn.; Latin name, zincum; equivalence II.; specific gravity, 7.10 to 7.20; atomic weight, 65; revised atomic weight, 64.904; fusing point, 773° F. 7th. *Cadmium*.—Symbol, cd.; Latin name, cadmium; equivalence, II.; specific gravity, 8.96; atomic weight, 112; molecule composed of one atom, revised atomic weight, 111.835; fusing point, 442° F. 8th. *Antimony*.—Symbol, sb.; Latin name, stibium; equivalence, III. & V., specific gravity, 6.72; atomic weight, 120; revised atomic weight, 119.955; fusing point, 842° F. 9th. *Palladium*.—Symbol, pd.; Latin name, palladium; equivalence, II. & IV.; specific gravity, 11.80; atomic weight, 106; revised atomic weight, 105.737; fusing point lower than platinum, but requires oxyhydrogen blowpipe. 10th. *Aluminum*.—Symbol, al.; Latin name, aluminium or aluminum; equivalence, IV. and (Al 2)vi; specific gravity, 2.50 to 2.67; atomic weight, 27; revised atomic weight, 27.009; fusing point, 1296° F. 11th. *Aluminum bronze*, which is an alloy in itself composed of 900 parts copper to 100 parts of aluminum, and is of golden hue.

"SUGGESTIONS ON CROWN AND BRIDGE WORK," by Frederick B. Kremer, D. D. S., Minneapolis, Minn. At the present time, in my practice, six teeth including piers, is the limit of a fixed bridge,

and then only in cases where I have a normal occlusion and a depth of space sufficient to enable me to make the bridge easily and thoroughly self-cleansing. By depth of space I mean cases in which either the crowns of the remaining teeth are long, or absorption after extraction has been sufficient to enable me to make the dummy teeth strong enough to bear the strain of mastication, and long enough that they may present lingually a continuous oval surface to which food cannot cling, or between which and the gums food cannot become impacted.

In cases where the crowns of remaining teeth are short, much abraded, and in square bites, a fixed bridge is usually a failure after a few years' use, owing to the difficulty in such cases of securing proper self-cleansing spaces, and at the same time the requisite strength for purposes of mastication. In all such cases a removable bridge is preferable, using telescope crowns made of gold alloyed with platinum or iridium, thus securing the maximum strength with the smallest amount of material. A removable bridge is indicated not only in the class of cases just mentioned, but also in all cases where the teeth are not firmly articulated, or, where there is much deviation from a normal occlusion. In the class of cases last mentioned the danger of fracture of porcelain facings is greatly increased, and knowing the difficulty of repair it is best to have a denture that can be removed from the mouth in case of accident. In almost any case a removable bridge is preferable in the end to a fixed bridge. It is true that a much higher degree of skill is necessary in the construction of removable bridge work to secure successful results than in fixed bridge work, but not so high as to be unattainable. I would earnestly commend to you a careful study of removable bridge work with the assurance that the more familiar you become with its uses and possibilities the better you will like it.

The breaking of porcelain in fixed bridge work, even where the occlusal surfaces have seemingly been thoroughly protected with gold, has been a source of much annoyance, and many directions for repairing the damage have been given. Little, however, has been said along the line of prevention. I think I can make two suggestions of value, one is old, the other new. The old idea is the use of removable porcelain facings. They answer the purpose very satisfactorily and should be more generally

adopted in practice. I have had one case in hard use for nearly two years and it is bearing the stress admirably. I believe the other idea is a cure for the evil because it reaches the cause of our trouble, namely, imperfect articulation. Seldom have I seen a case of bridge work where a proper articulation had been secured. A lateral movement of the jaw with correct articulation is an impossibility in plate work without the use of a Bonwill articulator. This knowledge caused me to look into the question of breakage in bridge work from the standpoint of articulation, and the result of my investigation was truly surprising. So much so, in fact, that I am almost prepared to say without reservation that metallic occluding surfaces are not a necessity in the molar and bicuspid teeth, provided a proper occlusion has been secured by the application of Bonwill's law of occlusion to the construction of bridge denture. I am and have been following the suggestion I have just given with very gratifying results. It may at first seem somewhat difficult to grind the dummy teeth to meet the requirements of this law, but it can be easily accomplished after a little practice.

Another of my early troubles was caused by the failure of shell crowns used as anchorages to stand the stress brought to bear upon them. They would sometimes be torn or broken down where the bridge was soldered to them. I have entirely overcome that annoyance by doubling the band half way around on that side. After making the crown and fitting it to the tooth or root, I bend a strip of gold of a width equal to that of the band and reaching partly up over the occlusal surface, soldering it to the crown, thus securing two thicknesses of metal instead of one where strength is most needed.

Great thoroughness is necessary in root preparation to avoid failure of the whole work. The crowns of all teeth are cones, with the base at occlusal or incisal surface, and the apex at the gum line. A study of the relation of the enamel to the dentine would convince anyone not wilfully obtuse of the impossibility of making a band passed over the base of the cone fit at the apex or gingival portion of the tooth, and yet I have heard a teacher of crown and bridge work talk by the hour to show that it was the easiest thing in the world to do. This diagram shows the appearance of a molar tooth after the removal of the enamel. A

study of this will show us that the cone still exists but the removal of the enamel has caused a reversion of the relations of the base and the apex. We now have the base of the cone at the gingival line. In other words, the largest diameter of the tooth is now at the gingival portion, and a band made from a measurement taken two-thirds of the distance from the occlusal surface toward the gum line and then driven to place must fit absolutely at the gingival line. The only way in which a band can be accurately fitted is by the complete removal of the enamel, and this should always be done even though you have to devitalize the tooth in order that you may accomplish it. Unfortunately, by the time the case reaches us the teeth on either side of the root to be crowned have usually changed position, so that the space to be filled is not the shape that it originally was. It has been the custom to bestow a great deal of labor upon the occlusal surfaces of these crowns with a view to having them appear as presentable as possible. This would be perfectly proper if it was not done at the expense of a far more important part of the operation, namely, the shape of the band with reference to proper points of contact and the shaping of the interproximate spaces. We all admit the importance of these points in making contour fillings, yet I fear we are all somewhat careless at times of these principles in making crowns, although their observance is very necessary.

The Dental Cosmos for September, 1895.

"ANTISEPTIC SURGERY," by A. W. Harlan, M. D., D. D. S., Chicago; read before the American Dental Association, Aug. 6, 1895. The essayist quoted from Cheyne's "Antiseptic Surgery" as to the origin of fermentation, that the particles which cause it find their way to the point of infection directly from the air or from surrounding objects; that so long as an animal is healthy, dead fluids or tissues may remain unfermented in closed cavities in the body, even entirely disappearing; but that so soon as atmospheric air with its dust is admitted, organisms develop and fermentations occur. True antisepsis is always possible in the mouth, but asepsis is, in some cases, absolutely impossible. In the handling of the dental pulp, whether from the standpoint of its ultimate destruction or that of its possible salvation, the strictest antiseptic precautions are to be observed. All contaminating influences are to

be excluded; instruments sterilized by heat or the use of agents which will not fail to destroy all particles from the air or moisture with which they are brought in contact. The pulp, to be preserved, must be kept from contact with saliva or mixed fluids of the mouth; water used upon its surface must be sterilized. Filtration is not sterilization. The water must be boiled, and all instruments cleaned and afterward boiled in a sodium bicarbonate solution, two or three per cent., or silico-fluorid, a saturated solution, 1-144. The pulp being in a closed cavity, after exposure, by disease or intentionally, should be removed surgically, with all necessary precautions to insure freedom from infection of the pericementum at the apex of a root.

The address then quoted at considerable length from a paper on "Surgical Cleanliness," by Dr. Leonard Freeman, as a guide for purely surgical work in the mouth. In this paper the writer urges that "everything must be surgically clean, that is, as nearly as possible free from bacteria; not only the instruments and dressings employed, but the hands of the surgeon and his assistants, and the skin of the patient to be operated upon. These things must be kept clean, and not be permitted to touch anything that is not as clean as themselves;" and after giving an excellent and simple method of preparing, the writer goes on to say, with reference to cleansing instruments: "Simply immersing instruments in bichlorid or in carbolic acid is not effective. . . . The best method is to boil the instruments in a one per cent. solution of carbonate of sodium. The boiling, in spite of what has been said to the contrary, does not injure the edges of knives, especially if they have been wrapped in cotton. After boiling, there is no necessity for placing instruments in carbolic acid or any other solution—they are already sterile. . . . Five or ten minutes' boiling is enough—no pathogenic germ can live after that. It is not necessary to boil for half an hour or longer, as is often advised."

Dr. Harlan went on to say that neglect to use the proper and necessary precautions in removing the pulp, or in the subsequent cleansing of the canal, will lead to much suffering and frequently eventuate in the loss of one or more teeth, portions of the process, or even of the maxilla itself. All operations on the roots of teeth, under the gum and between the tooth-root and the alveolar

process, will be more uniformly successful when they are made with surgically clean knives, burs, gouges, and scraping instruments. No syringe point should be introduced into the pericementum, or the gums, that is not surgically clean. Dirt, grease, dried blood, mucus, or any septic matter adhering to the needle will not be rendered aseptic by the soaking in any strength solution of a chemical disinfectant, unless it destroys such substances as fire will. Superheated steam, cooking in an oven, may do the work, but the instruments must first of all be cleaned. Such dressings as are used in the mouth should be made of gauze, impregnated with boracic acid (new), iodoform, or iodine solution, and, according to the consensus of the best surgical authors, such dressings should be as dry as possible. All operations which can be made as nearly bloodless as possible are to be considered most favorable.

"GREEN-STAIN," discussed at a symposium held by the Dental Society of the State of New York. The Etiology of Green-Stain, by Dr. Carl Theodor Gramm, Chicago. No special class of patients or of teeth is exempt from green-stain, but it is most frequently found on pitted, grooved, or markedly striated enamel-walls of incisors and cuspids, and in unclean mouths. As a rule, I have found erosion underneath green-stain associated with (1) exanthematous impress upon the teeth; (2) with a measure of constitutional degeneracy, congenital or post-natal, affecting the nutrition of the tooth itself and the fluids of the oral cavity. Since, however, these are precisely the circumstances under which erosion *without* green-stain is found, it cannot be held that green-stain *per se* is responsible for the erosion in such cases. Among eighty-five adult Russian Jews, in many of whom degeneration was marked, I found fifty-seven cases of green-stain. Of these, three cases showed erosion associated with the discoloration. There were, however, eleven cases of typical erosion without any stain whatever. In fifty-four of these cases the discoloration was readily removed with H₂ O₂, and the enamel-wall, after probably years of discoloration, left perfectly polished and translucent. Out of 1200 stained permanent largely carious teeth which I found in the various "dental parlors" of this city, less than three per cent. showed erosion of the enamel; this too, in face of the

fact that the patrons of those institutions are not especially given to the care of their mouths, and a goodly proportion of them are poorly nourished. At a large clinic for children, where I made notes of over eighty cases of green-stain, the percentage of decalcification was unexpectedly small. I found but six cases suggesting erosion, and these were notably among children of rickety, tuberculous, and neurotic diathesis. This in face of the observation of Professor Truman, "In young persons it has invariably been shown to be accompanied by decalcification."

Recurrence of Green-Stain.—Dr. Ottolengui has sought to find a point in favor of his hypothesis, namely, that fermentation of the residuum of milk caused the stain, by calling attention to the non-recurrence of green-stain after having once polished it away and reduced the imbibition of milk. I doubt, in the first place, whether the partaking of any one kind of food has aught to do with the product under discussion. My own clinical records, at least, do not suggest it. The cause of non-recurrence lies more probably in the polishing away of the cuticle, to which alone green-stain takes kindly. In October, 1894, I, in several instances, polished the middle one of three stained oral teeth, leaving the other two or more untouched. Having recently seen the cases, I found no recurrence of the stain, proving that either the general conditions under which green-stain was originally produced had changed, or that the tooth had been rendered uninviting by removing the cuticle.

Green-Stain under the Microscope.—For microscopic examination of green-stain, I have used ground sections of enamel and the separated enamel-cuticle. I prefer the ground sections because of the greater accuracy with which the distribution of the stain may be studied. The pits, depressions, and grooves affording the greatest shelter are usually the first and last to harbor green-stain. The granular elements associated with the stain seem, at times in its incipiency, to be colonized upon individual enamel-prisms, leaving a clear peripheral margin. Again, too, I have seen them arrayed at the periphery, leaving the central field of the prism clear, or, at most, tinged pale green, owing to diffusion. In the denser accumulations, all traces of prism-arrangement may be lost, and simply large, finely granular patches, with occasional larger granules of deeper tinge, show in the field. As far as I

could judge by my incompleted experiments, they absorb the analin dyes eagerly and lose them as readily. I think that all microscopists will support Professor Miller, in that "algæ do not grow upon the teeth." The point of solubility of chlorophyll in ether and in the insolubility of green-stain in alcohol, ether, and chloroform is well taken by that author. Of the hundreds of examinations that I have made, none have pointed to the presence of algæ.

Cause of Green-Stain.—In Professor Miller's "The Deposits upon the Teeth," the proposition that the stain may be due to sulfomethæmoglobin, each argument for that proposition is negatived so potently by Professor Miller himself that it seems hardly a matter for further consideration. My clinical experience and that in the biological laboratory leads me to support the proposition that green-stain is a chromogenic phenomenon attending, under certain conditions, some form of bacterial life within the mouth. Carl Fraenkel ("Grundriss der Bacterien Kunde," 1890), dealing with chromogenic species, writes, "All kinds of colors may be observed, white, black, blue, green, brown, red, orange, etc., some of them the brightest hue. How the formation of coloring matter is accomplished is not yet known with certainty. Probably the majority of micro-organisms do not generate the pigments directly, but only the basis of it,—a chromogenic body. If this is liberated in any way, for instance, by its passing through the membrane of the cell by diffusion or by death and decomposition of the micro-organism, it has an opportunity to combine with certain ingredients of the culture-medium, or to gain access to the oxygen of the air, and then, but not till then, does the color appear. This explains why the pigment is often observed only on a surface of our cultures, and why the tint is, as a rule, dependent upon the nature of the substratum."

The only instance in which I was able to produce green-stain upon a sterilized tooth which had shown no trace of it before the experiment was by associating it with a stained tooth in a tube with saliva and sugar. The green-stain, though very slight, accumulated at the line of the gingival margin on the enamel, which had suffered some slight decalcification before an injury while being extracted. My attempts to artificially produce the stain on culture-media have so far been unsuccessful. Morphologically,

all the varied stages of the growth, if we accept the pleomorphic theory, and the various species of bacteria which I found in scrapings of green-stain, were represented in my cultures. Not, however, until I resorted to the peptone-sugar-starch bouillon with a sterilized tooth suspended in it, and here I made an interesting observation. Within forty-eight hours a pure rich development of streptococci, which sank to the bottom, appeared in the liquid, which had become acid. The enamel-walls of the four teeth which had been suspended in the flasks were laden with heavy growths of Miller's *Leptothrix innominata*, *Bacillus buccalis maximus*, *Leptothrix buccalis maxima*, *Jodococcus vaginatus*, of the cultivation of which Miller ("Micro-organisms of the Human Mouth," 1890, page 69) says, "They all have the peculiarity that they will not grow on any of the usual culture-media. All endeavors at cultivation—and thousands have been made—proved unsuccessful. I have myself made hundreds of attempts to cultivate them on all of the various solid and fluid media. . . . I find it, however, more reasonable to explain the failure on the simple ground that these bacteria are very sensible to slight changes in the culture-media, and that no one has yet succeeded in constructing an artificial medium sufficiently similar to that found in certain mouths to admit of their cultivation." The deposit on these teeth resembles the common *materia alba* in color and consistency, while the enamel, due undoubtedly to the acid condition of the bouillon, suffered a superficial decalcification and became of brownish color, very like that often seen in incipient decay on the approximal walls of teeth. I repeated the experiment with bones of varied densities and with c. p. phosphate of lime in simple bouillon. The broth became putrid and the bacteria assumed a different character in each of the flasks, though inoculated from the same tooth and the same scraping; while the deposit of one flask was granular, that of another was thready and slimy, while that of still another had a tendency to accumulate in cheesy balls. I mention these tests to indicate how varied conditions, however slight, may influence morphology, character, and life of most bacteria. The tendency of the self-same bacteria to favor either fermentation or putrefaction is largely influenced by associated conditions, as is witnessed every day in the laboratory. Considering the great number of bacteria in the mouth, represent-

ing various species and stages of development or degeneration, it becomes clear that the labor of isolating, cultivating, and classifying them multiplies in geometric progression. I personally feel that my several years of continuous labor have brought me simply to the threshold of the science of biology."

To summarize, then, clinically, green-stain may be considered innocuous. It most frequently exists without causing erosion, if there be no congenital impress or post-natal constitutional degeneracy. It may be considered a chromogenic phenomenon, since we know chromogenic bacteria exist in the mouth, and it is reasonable to suppose that green-stain should become diffused throughout the enamel-cuticle, where, in grooves and pits, it may find shelter for itself and its producers.

The Classification of Green-Stain, by W. C. Barrett, M. D., D.D.S., Buffalo. Probably fifty per cent. of the teeth that fall under the observation of the dentist are affected by some form of pigmentation. Prof. Miller's theory is conclusive in establishing the fact that the so-called green-stain is usually a superficial deposit, and that it probably has no special pathological signification, except for diagnostic purpose. Dr. Miller was lately my guest, and at that time he had with him a large number of teeth exhibiting the stain, some of it green, some brown, some red, with the varying intermediate shades. There were the teeth of children, and of adults at different ages. There were a few cases in which, beneath the stain, was found eroded enamel, and there were many instances in which no sign of decalcification existed under it. There was indisputable stain upon decayed tissue, and it dropped into and followed the depressions of furrowed enamel; but in no instance, so far as I could observe, did it appear other than as a distinctly superficial deposit. We removed the enamel-cuticle, or Nasmyth's membrane, from teeth upon which there was a marked pigmentary deposit, and in every instance the stain came with it, leaving the tissue beneath it clear, white, and unmarked. This was the case in instances of furrowed enamel, in teeth with eroded enamel, and in those in which the enamel seemed comparatively perfect. Let me say, however, that teeth whose enamel is uneroded, smooth, and polished, are less frequently affected by stain, for the same reason that salivary and other deposits are not likely to be found on polished surfaces. It requires depressions either

minute or more defined, to afford lodging places for the initial deposits, and hence eroded enamel is more predisposed to pigmentation than that which is perfect. For purposes of classification, I shall make no distinction between the green, the blue, the black, the brown, or the red stain, or their intermediate shades. Clinically they are the same, and they have the same generic origin. If they are metallic in their source, the color depends upon the metal whose compounds form the stain. If they are due to bacteria, it depends upon the nature of the chromogenic organisms. Hence, no distinction will be made, except as indicating the origin of the discoloration.

Mineral Sources.—As one important factor, I will mention the metallic deposits that we frequently find upon the teeth—usually the incisors—of workers in copper, bronze, brass, iron, mercury, lead, nickel and silver. This has all been pointed out by the authority that I have mentioned, and he also refers to the fact that trumpeters often show a discoloration brought about by the contact of the teeth with the brass mouth-piece of their instrument. The teeth of tailors, also, are often discolored by the coloring-matter of the cloth in which they work. Among one hundred and fifty persons, workers in brass, bronze and copper for more than one year, whom Miller examined, he did not find a single individual who did not show more or less of green-stain upon the upper teeth, and this in varying shades. I may say that I have myself examined about fifty such, with nearly the same result, the only exceptions being in persons who were fastidious in the care of their mouth, or whose teeth were incrustated in other deposits. There are many animals whose teeth are covered by shining metallic deposits. These are chiefly or wholly among the graminivora. In some species the teeth of nearly every individual appear as if freshly gilded. In others they are quite black. Miller says he has found manganese deposits upon the teeth of the elephant, rhinoceros, dromedary, elk, deer and cow. We all know that superficial discoloration is frequently found at the margins of amalgam fillings, and workers in mercury are liable to special deposits upon the teeth. The very hair of copper workers becomes discolored, and their teeth form no exception.

Fermentation of Organic Matter.—The white, cheesy deposit that is found about the necks of teeth, especially such as suffer from

neglect, is apt in the course of the fermentation which it undergoes to become discolored, or, rather, to leave about the neck of the teeth a pigmentary deposit. This may arise from the mixture with it of mineral substances which are finally precipitated, or it may be the result of the chemical changes through which the matter passes. This cheesy deposit may have either an acid or an alkaline reaction, according to the character of the fermentation which is going on. If it be acid, the erosion of the teeth beneath it may be easily comprehended. We have but to reflect that the surface of the cervical portions of the tooth being thus superficially decalcified, if the character of the fermentation should change, and mineral or other pigmentary matter become a constituent of the deposit, it may be precipitated upon the eroded surface of the tooth, and thus give origin to a distinct stain.

Chromogenic Bacteria.—It is well known to all observers that certain forms of micro-organisms produce a distinct coloring-matter. Many of the macroscopic fungi do this, and we find the most brilliant colors in the mushrooms, molds, etc. Deposit about the teeth may become infected with these chromogenic or color-producing bacteria, and thus the tissue will be stained yellow, red, or some other color.

Sanguinary Deposits.—I believe it to be the case that in some instances the discoloration of the teeth is due to deposits from the blood. Miller says that if in the presence of air or oxygen a current of sulfuretted hydrogen is brought in contact with fresh blood, sulfo-methæmoglobin will be formed, which is greenish-red in concentrated and green in dilute solutions. It is not probable that this will be a very important factor in the production of these colored deposits, yet it will account for some instances.

Foreign Organic Matter.—We all know that the teeth of tobacco-users become deeply dyed in some instances. This is not usually confined to any special locality, but if when applied, as it usually is, alike to all portions of the tooth it stains, one may readily comprehend that other substances may be introduced into the mouth whose action will, because of limiting circumstances, or through non-liability of some of the tissues to their effects, cause a pigmentary deposit.

The Green-stain of Childhood.—Thus far we have considered only the discoloration that may be found on the teeth of adults. It is

evident that the same rule as to classification cannot obtain in the case of children. We must eliminate the metallic causes and search for other origins. Sufficient stain remains in the action of ferments. There is not the same diversity in the color of the pigments, and this leads to the conclusion that there are fewer causes to classify. At first thought we might imagine that the enamel-cuticle plays an important part in the green-stain of childhood, but it has been shown that it has appeared upon the surface of phosphate fillings in the deciduous teeth. That it may be changed by the application of bleaching agents like peroxid of hydrogen, would indicate that it is of organic origin, although it does not positively demonstrate it. There is a constant decomposition of food about the teeth, and bacteria are especially active in the oral cavities of children. The secretions of the mucous glands, that are somewhat specialized at the gum margins, are frequently degenerated and, under the action of ferment organisms, decomposed, and this may cause a pigmentary deposit which will naturally follow the festoon of the gums and give the crescentic appearance which the green-stain of childhood usually presents. It follows, then, that this form of discoloration should probably be classed with those which are of fermentive or bacterial origin.

Therapeutics of Green-Stain, by S. B. Palmer, M. D. S., Syracuse. The above subject is divided as follows: A. Agents facilitating the removal of the stain. B. Agents acting preventively. C. The proportion of recurrences of the stain, and of decalcification around fillings inserted, and whether one filling-material acts more beneficially than others.—A. All who have removed this pigment know that it is far more difficult than it would be to dislodge ordinary tartar of the same thickness, especially when the enamel-surfaces are roughened, containing pits and fissures. One most effective and convenient agent to use is a deterative powder, of which there are several: fine pumice, powdered Arkansas stone, flour of emery, Tripoli powder, etc., moistened and used on strips, wooden points, and with brushes. The engine, with its ready appliances of small brushes, wheels of moose-hide, rubber cups, wooden points, disks, etc., will reach nearly every surface and perform the work rapidly. Probably the most practical and universal of the powders is fine pumice. A good wheel for flat sur-

faces is moose-hide. Rubber cups reach many difficult places, and are effective because they carry the powder much longer. Narrow polishing strips, with thin cloth backs, cut to a point at one end, passed between the teeth near the gums, charged with powder, are good for approximal surfaces. In cases of uneven surfaces of enamel, coarse pumice can be used to good advantage, as it will enter deeper into the pits and depressions. Still, with all the above named appliances, the stain cannot be readily removed from inaccessible surfaces. After experimenting with many agents, I have adopted pyrozone, three per cent., with which to moisten the powder, and, in extreme cases, add one or two drops of phosphoric acid, used for cement fillings, to a teaspoon-full of moistened pumice. A tumbler of warm water, containing a little carbonate of soda, is good for rinsing the mouth.

As a bleachant from within the tooth, pyrozone seems to be the only thing now known to the profession that will restore, with any show of permanency, a pulpless and therefore (*therefore* in a majority of cases) discolored tooth to a shade approaching that of its ante-pulpless days. This property of pyrozone has been taken advantage of pretty generally, and discussed to such extent that nearly if not quite everything claimed for it is conceded. As a decolorizer from without, less is known and, as a consequence, less is said of it. The removal of stains (green or other) mechanically involves or necessitates the loss of more or less of the tooth, robs the superficial portion of its fine structure and luster, and prepares the way for a speedy return of a deeper dye, with repetitions of the process of removal until the child has outgrown the conditions of which green-stain is simply an indication and of, no more consequence *in itself* than red stain or blue. To avoid this mechanical mutilation, which is urged chiefly because of the offensiveness of the stain to the eye, two of what appear to be purely chemical processes have been resorted to: 1. The application to the stained surface of iodine, followed by weak aqua ammonia (or aromatic spirits), repeating the applications at the same or a subsequent sitting until the stain disappears. 2. Removal of oily deposits from the teeth by the application on cotton of ammonia or bicarbonate of soda, followed by clear water, and this by twenty-five per cent. pyrozone, well rubbed in with cotton or a leather buff, followed in turn by soda, to neutral-

ize the slight acidity and mitigate the occasionally caustic effects on the softer tissues. This latter treatment is effective to a remarkable degree, usually accomplishing its purpose promptly and always without injury to the teeth, either as to structure or luster, which we have demonstrated repeatedly as well out of the mouth by immersing teeth in caustic pyrozone for periods of two weeks at a time. In case the enamel is roughened and dissolved nearly through to the dentine, a stone wheel, fine grit and broad face, will give a better surface by grinding the prominent portions down, which will lessen the depression. In the event of sensitiveness, it is better to make two or more operations, leaving the surface polished each time. To reach deep pits, the small brushes used with the engine do nice work; by cutting them back one-half the length and to a point, they are better than wooden points to hold the powder.

B. Agents acting preventively. Leaving out the *primary cause*, prevention consists in so changing the conditions as to prevent secondary deposits. The two most prominent conditions favoring green-stain are roughness of enamel or uncleanness, or neglect to remove that which ultimately produces it. After a case has been treated as above mentioned, with ordinary care in brushing, and the use of a dentifrice, there is seldom any recurrence. With the habit of neglect which allows the deposit, one lesson in prevention will not always be sufficient, although the patient may think the instructions have been followed. It is much like removal of tartar; by care, it can be prevented from any considerable lodgment; by neglect, it accumulates. Usually, when a patient calls for a removal of a pigment, both density of the enamel and understanding how to prevent a recurrence are greatly in favor of success.

C. The proportion of the recurrences of the stain and of decalcification around fillings, and whether one filling-material acts more beneficially than others. The proportion of the recurrence is determined by the attention given to instructions. With young children and no one to see that the teeth are cared for, we would look for a large percentage of recurrences. With proper care quite opposite results would follow.

Decalcification around Fillings.—I am not prepared to say that the color has anything to do with disintegration of the enamel.

We find that condition both with and without the pigment. Usually, both conditions are results of allowing food to remain confined by the lips to undergo fermentation with its attendant consequences. So far as my practice is concerned, in either case gutta-percha is best for young teeth, even if renewal is necessary, until the dentine becomes dense. Gold may be safely used as inlays; a thin plate of gold cut to fit the cavity, the under surface being raised to sharp points with a graver and set with cement, gives perfect satisfaction and is durable, while a gold filling would prove an injury. The most satisfactory fillings, when done, are porcelain inlays inserted in like manner.

TO LESSEN THE PAIN FROM ARSENIC.—Mix equal parts of antipyrin and arsenic. The antipyrin diminishes blood-pressure and relieves the congestion caused by the arsenic, and therefore diminishes pain.—*G. C. Richards.*

THE DIRECT INFLUENCE OF BICARBONATE OF SODA ON THE GASTRIC SECRETION.—N. Reichmann (*Therap. Monatshefte*), in view of the uncertain teaching as to the effects produced on the gastric mucous membrane by alkalis, investigated the matter methodically, choosing bicarbonate of soda on account of the extent to which it is generally used. The experiments were performed on human beings, the following five methods being employed. Patients drank before breakfast, during successive mornings; alternately 200 cubic centimeters of distilled water and 200 cubic centimeters of a bicarbonate solution. After fifteen to thirty minutes the gastric contents were aspirated, but neither small nor large doses appeared to influence the quantity of fluid secreted. The same experiment was tried in subjects who, however, were allowed shortly after drinking to eat a breakfast. Here again the result of aspiration was negative. In the next place the alkali was administered every morning during several weeks, but no appreciable effect was produced. On the other hand, when taken after food, the acidity of the gastric contents was diminished in proportion to the amount of bicarbonate taken. Again, this investigation, when extended over several weeks, produced no effect on the gastric secretion. In conclusion the author states that the examinations numbered 103, that the drug will act as an alkali even to a considerable degree, but that it in no way influences the secretory power of the stomach. Nevertheless he admits the value of a drug which is capable of lessening acidity, and he states that the long continued use of weak alkalies will no doubt produce a tonic effect on a weak gastric mucous membrane.—*Brit. Med. Jour.*

Letters.

GO THOU AND DO LIKEWISE.

PORTLAND, Ore., Oct. 15, 1895.

DEAR DR. CROUSE:—Enclosed please find express order for four dollars, to pay my subscription to the *DIGEST* for this year and in advance for next. I am more than pleased with your journal, I am delighted.

Yours truly,

E. L. LANE.

LETTER FROM PHILADELPHIA.

PHILADELPHIA, Oct. 12, 1895.

To the Editor of the Dental Digest,

DEAR EDITOR:—In the New York letter of Sept. 15, I find the following: "We were told lately, by a good and true man, that it was believed that Philadelphia had put a test upon their former society that it would not be able to meet—it is virtually dead now." Would it not be proper to assume that the society referred to is the oldest in Philadelphia? It is now about fifty years old. This former society, the first one organized in Philadelphia, and therefore before all others, is "virtually dead." A society that is making arrangements to celebrate its golden anniversary might be said to be "virtually alive."

As *M. A. G.* lives in the den of the Tigers he should not take all for granted that is told to him by his friend from Philadelphia. This "good and true man" from the City of Brotherly Love has, I fear, imposed upon *M. A. G.* with some fairy tales about the enforcement of Tammany's excise laws.

A gentleman who holds a prominent place in the community and in the dental profession said the Dental Protective Association of the United States had done a great work and had benefitted the profession. When asked why he did not join it, he replied, "O! let the other fellows do that." Would it not be the proper thing for the D. P. A. to make arrangements whereby these men, who now allow others to pay for their protection, could have the

full benefit of paying royalty to all the numerous schemes which the Association has driven off?

Genial Dr. H. C. Register had a large delegation of dentists out to his summer home at Ardmore. There is no one in Philadelphia who can excel him in entertaining his friends, and everyone who was so fortunate as to be present will say, Amen. E. K.

NEW YORK LETTER.

NEW YORK, Oct. 15, 1895.

To the Editor of the Digest,

MR EDITOR:—What next? Something hard to say at this date, except that the glory of some men has departed. "To Atlanta and back," is heard amidst the noise of this modern city of greatness. In the meantime Dr. Bogue and daughter are sojourning in Paris. Dr. Davenport, formerly associated with Dr. Bogue, has visited New York. He is one of the many of this family; their name is legion, and all dentists. Dr. Levrett, also of Paris, has made a prolonged stay in New York perfecting himself in the latest deal in "dental ceramics," viz. — porcelain bridge-work. He is an honored son of Dr. Levrett of New York, the inventor of the perforated gold plate used in combination with rubber, making beautiful work as he did it. Dr. Levrett, Jr., is a nice dapper little fellow in the latest tailor-made Paris dress. For several years he has occupied a definite position in the first dental school in France, but is now *le professeur*. He has not been wholly in accord with the movement in legislative action of France—the full freedom of American dentists, or as to that matter, of any outsiders. Also, there has not been accorded a recognition of ability to assume the responsibility of administering anesthetics; we think, however, this refers only to chlofoform and ether. So much for France.

We see by the *Dental Record*, of London, that our Miller is recruiting in company with Mr. Mummery, of London, celebrated for his microscopical work. In the cable dispatches to the New York *Herald*, Dr Miller is said to be one of the foremost in the Berlin Golf Club. As this game requires a vigorous activity, we

may safely hope the health he has been deprived of may be regained.

What a pity it is that Germany's grand old man, Bismarck, according to the *Herald* dispatches, cannot be relieved of his acute sufferings from neuralgia of the face and head. We have it straight that his teeth are undoubtedly the source of discomfort. Why can he not have some of the American ability that is being so especially emphasized by the way of the Windy City? There are a good many broad smiles regarding this. We know something of what it costs to start out in our enthusiasm for an interdicted specialty. We have had a large experience, but the goal is not yet reached.

Dr. Lenox Curtis has had a varied career in starting out as a specialist in oral surgery. It has nearly cost him his life, to say nothing of a liberal expenditure of his accumulated ducats. He has just returned from a protracted tour on the Pacific coast in search of physical "resistibility." He thinks he has it, and he has made a new move, viz., absolutely casting aloof from all attempts to teach or to be any longer attached to the "mother" institutions, but to go it alone, taking up his former intent of an alliance of the nose and throat treatment with the dealings of mouth and teeth, entirely apart from dental practice. We think he has moved wisely to the most charming spot of all New York, 59th Street, facing Central Park, and the grandest Plaza of America, bounded by the most luxuriously furnished hotels probably in the world, and adjoining these the most elaborate drug establishments to be found anywhere.

New York is booming in everything that is decorative and luxurious, but judging from the dental literature contained in our monthly journals, Chicago takes the lead, and Philadelphia is next. If Chicago can stomach all that is published, and make a good "Digest" of it, assimilation ought to accomplish more in the near future for a healthier body.

We think we have had all we need of "suggesting." We have been asked to make a suggestion regarding the situation in New York, but we haven't any. We are not in it. We wish all well. If we sow, we shall reap. Whatever we mete out to others shall be measured to us again. Human nature doesn't like it. We have all been there more or less. Why not get into right-doing because

it is right? But only individuals will do this, and precious few, too.

We have often emphasized the value of a headquarters for the archives of our calling, which includes all articles of professional interest, and it has always appeared to us that Washington was the most appropriate of all places for such gathering of articles of vertu. Any one who has visited the new Army and Navy Museum Building and taken note of its completeness and security as a place for safe deposit, can hardly fail to see the wisdom of confiding our articles of value to the custody of this place. It would surprise many to know of the completeness of the catalogued articles already culled from dental literature, and these alone are of untold value. Some decisive action on the part of the profession cannot be too quickly taken. The credit that it would reflect upon our ambition would be of no mean order. The American Dental Association is doubtless the proper body to act in the matter. We will repeat what we have said before, that it would add much to the interest taken in this movement if the American would meet in Washington once every four years, and in this way an eye could be kept on the increasing deposits.

With the incoming of New York, the dental fraternity come also from their various outgoings by sea and land, mountain and field, and with dog, gun and rod, and last, but far from the least, the bicycle. Out of all these outings there should have come much increase of physical energy which ought to result in great good for the suffering world.

We have given out in the past the indications of much impending dissension among the dentists, and in no place so much as in New York, and the "Greater New York," in the near future.

The First District Society opened the season the second Tuesday in October with a small and not very enthusiastic gathering. In the new administration there is a good deal of head and "Hart"—a good combination. Dr. C. E. Francis read an interesting paper entitled, "Reminiscences." Dr. Meyer exhibited his new invention of hydraulic pressure and shot for putting plates to a fit. However irregular the method may be, it is simple and very interesting. There has been a good deal of pressure and hot shot all along the line, and it has caused much anxiety among

good men. It is gratifying to note that there are varied signs of a return to peace where no peace prevailed. We are now talking about the indications concerning the future of the New York Odontological Society. If half the rumors are verified, this society is to enter upon the most hopeful and vigorous campaign of all heretofore. It is refreshing, for this body has had an unusual history, associated with many mistakes of individuals and of the body. Such is the history of the life of mankind. Mistakes make openings for greater possibilities. We prophesy success if the program is faithfully carried out, and we are not sceptical, considering the proven ability of the chairman.

Fortunately for us in getting news we got our ear to the cross-current of the telephone and heard a batch of mixed talk, out of which tangle we can bring something that puts on a brighter look for this body than ever. This is singular, for we have never been much in the confidence of the management, so they will bear with us if we speak out a little we heard (not in confidence).

Probably no one man has embellished this body more in his line of ability than the magnificent figure and personality of Dr. A. L. Northrup, who, it must be granted, has no peer in the dental profession as a presiding officer. We believe that much of the dissension which has come to this body could and would have been averted if he could have been allowed to become its *perpetual* president. Our dear Atkinson sought this for him early and late, for he believed that it was the true principle for all societies. Dr. Northrup will, at the end of his term in December, step down and out of all ambitions in society matters, and a very gratifying purpose is in mind to let him down easily and graciously. He will doubtless receive the most lavish attentions in January that have ever been accorded to any dental practitioner. We are very glad for his sake and for the sake of all who will participate. It is intended that it shall be unparalleled by any former affair and it is believed that the "pipe of peace" will be smoked and harmony will again prevail. All Philadelphia will be there, and they are to bring the original pipe and the "Penn" that signed the treaty. Dr. Northrup can afford to lay his laurels down; he has had his fill; he is in possession of the largest practice financially in New York; and he is in good health. There is only one man

who can vie with him in good looks, and he is from St. Louis. Bring along the "loving-cup," Mac., and the oil and wine will be in readiness.

Out of all this the society is to step out and up into a cycle that will eclipse all former records, and into exploits that will paralyze all journals that do not get the future proceedings. The subject for the opening meeting in October gives a hint of what is coming, dealing with the palate; this will bring into thought the nerves of taste, of course, and then go slow for the November meeting. Dr. Crouse did the biggest thing in the railroad traffic up to date in that special train from Chicago to Minneapolis, but imagine if you can, a limited special from Philadelphia with Stomatological fellows aboard, and added to them the picked men from all quarters. For what? To listen to a paper by Prof. Darby's son on "Erosion," and it is said to be new, followed by such a collation as can be produced only by the caterers of the Academy of Medicine.

But the biggest card is to come, something which will crackle all the thorns in the crowns of men of science. This information has come to us from over the sea. New York has never been so fortunate as it will be in this foreign contribution to science. We bespoke a bright future for the coming days in the hands of the new president. Nothing like honey for flies; you can surely catch them if you don't reckon time as an object; you may be side-tracked occasionally, but keep on trying and there will be no doubt about the final issue. "Persistibility and Resistibility" is the emblem in New York.

Nothing like a good Digest, and that we have, now give us assimilation and we will get somewhere. M. A. G.

WHAT'S IN A NAME?—A good deal depends how and in what connection it is used. Sometime since there was a conviction recorded against a man who labeled his establishment a "dentorium," the magistrate holding that it was an infringement of the Dentists' Act; and now we find a lady proclaiming herself a "denticuriste." As her name does not appear on the register we are curious to know how the law will take "denticuriste" while it rebels at "dentorium." We learn from *Woman* that the lady in question is doing well, her principal work being scaling and polishing teeth.—*The Dental Weekly* (London).

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

THE GRANTING OF HONORARY DEGREES.

Quite a discussion has grown out of the action taken by the American Dental Association concerning the conferring of honorary degrees. At the last meeting a resolution was passed which disapproved of the granting of such degrees. This action grew out of the fact that the regents of one of the colleges, independent of and without consulting their own dental faculty, granted an honorary degree in dentistry. Also because the College Faculties Association, at one of its first sessions this year, passed a resolution authorizing one of the colleges belonging to the Association to grant an honorary degree to a person who was one of the teachers in the college, who had never studied dentistry and was no subject for an honorary degree, which means that the receiver has rendered the dental profession a great service or has done something very meritorious. The action of the American Association was taken after these two, what shall we say, mistakes, had been committed, and the College Faculties Association promptly reconsidered its action, and also requested the regents to recall the honorary degree they had granted in violation of the laws of the Association. The discussion and talk since that meeting have in a measure condemned this action.

The granting of honorary degrees has become altogether too common, making it a burlesque to receive one. Many persons holding honorary degrees in dentistry never attended a dental lecture nor did anything for the advancement of the profession; some holding honorary university degrees never saw the inside of a university, or of a college either, for that matter; and some

holding honorary degrees in medicine never did anything in medicine or for the benefit of mankind. It is nearly always an indication of vanity, and not usually a proof of knowledge, when a person accepts or secures such a degree. The University of Berlin and the University of Oxford each year confer an honorary degree upon some man whom they think has merited it by his work, and such degrees are prized the world over, but the promiscuous conferring of honorary degrees in this country is becoming a farce.

WHY DOES THE DENTAL PROFESSION NOT WRITE MORE?

We are led to ask this question by the apparent dearth of material. There are eleven dental journals published monthly in the United States, and in the September issues there were just seven original articles. This does not include the proceedings of societies, as they are repeated and published in different forms until the author of a paper could hardly tell when or where he read it. The reports or papers of the Tri-State Meeting have been published in three different journals; the Mississippi Valley Dental Society in three also, and so on. An article which appeared in a journal in June for the first time, is now published in the September issues of three different journals. We might go on and give other instances of the same kind, but enough has been said to show that the journals seem to have very little original, that is, new, matter on hand.

This is a sad state of affairs. If the dentists wish to be classed as a profession they should remember that there is no other profession which writes so little, that is, in proportion to numbers, of course, as our own. If they are content to have dentistry considered a trade, even the trade journals are full of matter relative to their various arts. There are many bright men in the dental profession, and they could enlighten their fellow practitioners as well as broaden their own minds if they would give expression to their thoughts and methods. The public need a thorough training in the care of their teeth, and it is all very well to discuss methods of educating them, but the talented part of the profession should not lose sight of the obligation resting upon them to help in educating their less fortunate associates as well.

Book Reviews.

GENERAL SURGERY AND PATHOLOGY FOR DENTISTS.—By Edmund W. Roughton, B. S., M. D. (London), F. R. C. S. 134 pages; illustrated. Published by J. P. Segg & Co., London, and The S. S. White Dental Mfg. Co., Phila.

This book covers a large field in a very concise manner, and the treatment of the subjects is plain and clear. There are numerous illustrations showing the processes of destruction and repair of tissue. The volume is well adapted for the use of the practitioner as a book of hurried reference, and to the student for use in connection with a more extended work.

Notices.

MASSACHUSETTS DENTAL SOCIETY.

Officers for the ensuing year are as follows: President, Geo. A. Maxfield, D. D. S., Holyoke; 1st vice-pres., Waldo E. Boardman, D. M. D., Boston; 2nd vice-pres., Harry S. Draper, D. D. S., Boston; Sec'y., Edgar O. Kinsman, D. D. S., Cambridge; Treas., Edward Page, M. D., D. M. D., Charlestown; Librarian, Thomas W. Clements, D. D. S., Brookline; Editor, Joseph T. Paul, D. M. D., Boston.

The State and Society have been divided into districts as follows: North and South—Metropolitan; North and South—Eastern; Central, Valley, Western—District Dental Societies.

E. O. KINSMAN, D. D. S., Secy.

FINANCES OF COLUMBIAN DENTAL CONGRESS.

REPORT OF TREASURER OF WORLD'S COLUMBIAN DENTAL CONGRESS IN FULL FROM MARCH 23d, 1891, TO JULY 23, 1895.

RECEIPTS.

American Dental Asso.....	\$ 1,000.00	France.....	100.00
Illinois State Dental Soc..	321.00	Florida.....	20.00
Iowa State Dental Soc.....	100.00	Georgia.....	125.00
Southern Dental Asso.....	200.00	Germany.....	10.00
Washington City Dental So	50.00	Hawaii Islands.....	40.00
Alabama.....	130.00	Illinois.....	3,802.00
Arizona.....	20.00	Iowa.....	460.00
Arkansas.....	20.00	Indiana.....	355.00
Austria.....	10.00	Italy.....	10.00
California.....	548.00	Kentucky.....	120.00
Canada.....	20.00	Kansas.....	130.00
Connecticut.....	220.00	Louisiana.....	60.00
China.....	30.00	Maryland.....	250.00
Colorado.....	40.00	Massachusetts.....	395.00
Chili.....	10.00	Mississippi.....	40.00
Cuba.....	10.00	Michigan.....	245.00
Delaware.....	50.00	Mexico.....	20.00
District of Columbia.....	190.00	Maine.....	190.00
England.....	50.00	Minnesota.....	405.00

Montana	10.00	West Virginia	10.00
Missouri	715.00	Wisconsin	150.00
Miscellaneous	11.70	American College of Den- tal Surgery	10.00
Nebraska	180.00	Baltimore College	10.00
New Jersey	477.50	Chicago College	10.00
New York	1,515.30	Columbia University	10.00
North Carolina	210.25	Louisville Dental College	20.00
New South Wales	30.00	New York Dental College	10.00
North Dakota	40.00	Ohio Dental College	10.00
New Hampshire	10.00	University of Buffalo	10.00
Ohio	620.00	University of California	10.00
Oregon	20.00	University of Minnesota	10.00
Pennsylvania	840.30	University of Western Re- serve	10.00
Paraguay	20.00	Wilmington Dental Mfg. Co.	40.00
Rhode Island	25.00	Philadelphia College	10.00
Russia	30.00		
South Dakota	10.00		
South Carolina	130.00		
Scotland	20.15		
Switzerland	20.00		
South America	10.00	Amount received from Co- lumbia Nat'l Bank	286.06
Spain	20.00	Donations of Executive Committee	3,600.00
Tennessee	290.00		
Texas	170.00		
Vermont	120.00		
Virginia	100.00		
Washington	80.00		
			<u>\$15,851.55</u>
			<u>\$19,737.61</u>

DISBURSEMENTS.

General Finance Committee, L. D. Shepard	\$ 926.25
Executive Committee, Sec'y Expenses	3,018.84
Treasurer's Expenses	583.59
Treasurer's Bond	100.00
Secretary General's Expenses	1,299.48
State Conference Committee, J. Taft	218.87
Registration Committee, Fred A. Levy (per G. C. Brown)	34.00
Invitation Committee, W. C. Barrett	16.95
Clinics Committee, C. F. W. Bodecker and S. H. Guilford	80.35
Biology Committee, R. R. Andrews	18.15
Nomenclature Committee, G. V. Black	31.00
History Committee, J. Taft	1,523.57
Membership Committee, E. Noyes	13.50
Publication of Transactions Committee, A. W. Harlan	4,529.95
Donations by Executive Committee, Trav. Ex.	3,600.00
Woman's Department	307.00
Dental Manufacturing Co., S. S. White	121.80
Medals	720.00
Buttons and Badges	257.63
Club House	1,530.00
Banquet (Deficit)	274.60
Refunded Memberships	50.00
Exchange	6.36
	<u>\$ 19,261.80</u>
Paid by Columbia National Bank	286.06
Unpaid by Columbia National Bank	127.09
	<u>\$19,675.04</u>
Balance, July 23d, 1895, in Merchants Loan and Trust Co. Bank	62.57
	<u>\$19,737.61</u>

(Signed) JOHN S. MARSHALL, Treasurer.

The Dental Digest.

Vol. I.

CHICAGO, NOVEMBER, 1895.

No. 11.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. CROUSE, D. D. S., CHICAGO.

[Continued from page 579, No. 10, Vol. I.]

In our last article we made the statement that poor teeth, as well as their destruction by caries, were due to imperfect nutrition and too great mental exertion. However, we did not intend to imply that they comprised all the causes, as we are well aware that the questions concerning the causes of trouble in the mouth, and the many forms of disease, are still in dispute, and we do not intend discussing them in detail in this paper. Nevertheless, intelligent patients are always desirous of knowing the causes and more especially how to prevent as far as possible the diseases to which their teeth are almost universally subject. Therefore, every dentist who expects to serve an intelligent community should be well informed on the established theories concerning the decay of the teeth, so that he can impart such information to his patrons as will lessen and prevent to some extent the trouble.

To begin with, wholesome food and pure air are bound to produce better physical organizations than poor food and bad air; and a strong physique and good digestion will beget better teeth and less dental disorder than a weak, dyspeptic system. Let us see then what is the best food to make children healthy and have good teeth. The diet should be varied and should contain foods which require thorough mastication.

Hot and doughy breads should be avoided, and bread raised with yeast should be more thoroughly baked than is the general

rule, and should be at least one day old when eaten. Cake, pastry and condiments of various kinds should be forbidden for several reasons. They occupy space in the stomach to the exclusion of more nutritious food; they upset the digestion; and they, while very palatable, so deprave the taste that substantial food is not craved and therefore not eaten. Children eat more sweets, candy, cake, etc., than their parents have any idea of.

Another bad custom is the excessive use of oatmeal. We are aware that in this view we will be opposed, as the article is much used as a breakfast food, very often as the chief dish, and with cream and sugar it makes a very palatable meal, but from an extensive observation of its action on children's teeth we are forced to the belief that it is one of the most objectionable foods that can be given to a growing child. We have never seen such a poor quality of teeth as in children who have been allowed an excessive use of oatmeal with cream and sugar. In large families where some of the children ate oatmeal and the others did not, the difference in the quality of their teeth caused us to look for causes, and the conclusion as stated was forced upon us.

The vegetables, especially in large cities, are often brought from such a distance as to make them unfit for food. Good potatoes are about the hardest thing to get, and it is very difficult to pass judgment until they are cooked, or even eaten. They should be grown in a sandy or light soil, not a wet or heavy one, and above all should be ripe, when they form a very digestible article of diet.

This subject of food is so extensive that we can touch only on a few points which we think are most important, leaving much which we would like to discuss. The next abuse must be treated of briefly, and that is the crowding of children in their studies. This applies more to families in cities, where the child is robbed of his childhood, especially an intellectual or delicate subject who should not be confined very closely. We have often plead, but to no avail, with the parents of nervous and delicate children, for the sake of their teeth, as well as their bodies, to take them out of school and send them into the country, where they could recuperate and be freed from the nervous strain and foul air of the school-room.

We will take up care and preventive treatment in our next article.

[TO BE CONTINUED.]

PYORRHEA ALVEOLARIS.

BY P. T. SMITH, D. D. S., DENVER, COL.

The abstrusity of conditions in an atomic aggregation of organic elements wherein automatism is exhibited, too often transcends the finite comprehension of the most intuitively endowed and erudite pedagogue or scholar, and we are left to grope about in darkness and danger in considering local or apparent pathological manifestations, whose origin occurs in such remote and seeming incongruous ways that the alert diagnostician is astonished at the great remove the object of his direct comprehension bears to the initiatory derangement, and whose insidious progress leads on to vital abnegation or transmutation, beyond which vicarious intermediation will not retrieve.

Under the above caption of life's functional adversion we are invited to contemplate, to a limited extent, the prevalent expression of vital degeneracy noticeable about the cirvo-gingival margins, and go back with the author to a remote inceptive principle of life to find the original seed of this membranous enemy.

Every organ, membrane tissue, or substance of an organic identity, has its peculiar class of cells which perform specific functional service in the development and maintenance of each kind or character of organ recognizable in the aggregated body. These cells derive and maintain their elemental and functional differentiation from their immaterial and material composition, derived originally from the aids of parental promptings, and subject to subsequent influence of environment capable of changing their composition, so that at all times and ultimately their behavior is controlled by influences of composition.

Successful construction and perpetuity of any organic structure depend upon harmonious association of formative substances in cell individuality. This condition can only be exhibited by the necessary supply of proximate elements within the zone of their vital attraction. The latitude of cell action displayed in the result of their construction shows imperfection in proportion to the incongruous accretions they are forced to carry forward to their terminal destiny, and the unenduring result of the finish. Each anatomical division represents distinctive original characteristics, some with more attenuated histological construction, requiring a correspondingly delicate vital current of the purest

composition to sustain up to the functional standard of physical welfare of the parts considered. Others supplied by the same blood stream require and obtain elements of entirely different chemico-vital composition.

The cells upon whose formation devolves the evolution of the teeth, pericemental membrane, the nerve tissue supplying these parts requires full, steady, uninterrupted volume of nourishing vital current for a continuous and physiological result. The more intricate the construction of any anatomical or histological part, the more pure and contributive must be the flow of the vital nourishment to the objective tissue. Abnormal functional intervention with the best defined power and action of this life or nourishing current will stultify, deplete and starve any organ situated along the line or beyond the point of diminished or changed supply, or at any point of functional culmination, if any pathological interference is exhibited the dependent tissue must atrophy.

The organs most difficult of production are the most difficult to sustain in health, and of course the easiest to dethrone or swerve from their divine course or position. The lung tissue is likely the most common of any to display pathological intervention, being exposed perhaps to a larger range of negative influence. The hepatic and renal regions are similarly susceptible to deteriorating encroachments; correlatively are also the nasal and cranial mucus-lined sinus pericemental membranes and gingivæ, the latter being more easily weakened, owing to its complicated texture and service, as well as its situation at the vital terminus.

Some of the more active causes of vital interruption to the tissues mentioned are faulty nutrition, due to improper food, water and air; too much nitrogenous and oleaginous food; not enough organic phosphoric nourishment; too little or irregular sunlight exercise; too much mental strain and worry; too much continued exhaustion, and not enough systematic rest. Dietetic regularity and harmonious adaption are absolutely necessary to the surest continuation of organic economy; nothing but organic elements can be appropriated to the use and benefit of the ultimate organic upbuilding and perpetuity; primates cannot be correlated to the use and benefit of ultimate organic existence. Indigestible substances weaken and thwart the purposes of the

life currents. Mineral waters, of whatever kind, are contra-indicated in every instance, serving to clog and enervate cell action and composition. All fermented foods or drinks that have passed from the true organic form or natural atomic relations cannot be utilized by live organism. By the inordinate use of primate, mineral-bearing air, water and food, with too little proper fruit juices and vehicle-producing food, the organic elements of the body are encumbered, loaded down and overtaxed with elements that cannot be eliminated.

Alveolar Pyorrhea is simply a manifestation of overtaxed cells, where a clean, harmonious supply of adaptable nourishment should be exhibited, but instead the indigestible mineral substances or supply is overabundant, the canals for the home of nerve vessels and fluids are constricted, and the vital current is diminished until the co-operative cells find no room to work and local death gradually ensues, supplanted by pus formation, corrosion and absorption, as recognizable in the disease designating the character of this paper. The same causes operative in the establishment of pyorrhea develop liver and kidney troubles; they may or may not be co-existing. If either organ is stronger than the other, it is the last to be dethroned, if it is at all. Then the cause of this formidable derangement can be summed up in a description of bad living in the way of breathing bad air, drinking bad water, eating incongruous food of whatever kind, great mental strain, worry, excitement, irregularity, and lack of hygienic and physiological observations and adaptations in the regime of our lives.

GREEN HAIR.—Those who recall the experience of Timothy Tittlebat in his endeavors to get rid of his carrot locks, undoubtedly regard the report of green hair as somewhat of a fiction. As a matter of fact such colored hirsute adornment frequently appears among those employed in copper works and copper mines, and Bartholin drew attention to this fact as far back as 1654. Recently a case was reported to the Johns Hopkins Medical Society by Doctor Oppenheimer, as occurring in a man aged fifty-eight who had been exposed in copper works to very fine copper oxide for four years; he was rather uncleanly in habits, and was likewise "suffering from vague gastric symptoms." The hair was a "pale but distinct green," the color being more marked on the head and the beard, though, curiously enough, it pertained to the same growth throughout the surface of the body; the coloring, moreover, was uniform.—*Med. Age*.

CONSERVATIVE BRIDGE-BUILDING.

BY IRA B. ARCHER, D. D. S., NO. SAN JUAN, CAL.

Modern bridge-work, when properly constructed, is one of the most artistic and useful, as well as comfortable, substitutes made by the profession. But do we always use common sense and do justice to the patient in selecting the proper appliance for every case? "The highest art is to conceal art." How many follow this precept in manipulation?

It is my candid belief that it requires more skill to turn out a good plate than a bridge. There is nothing hard about bridge-building; use common sense and close workmanship, paying strict attention to contour and occlusion; make your artificial piece conform to the natural organs—utility first, beauty last.

The higher class of patients object to being made like unto the golden calf, or to having sound teeth mutilated. They demand cleanliness, and as the best made appliance is subject to breakage, we should construct it with due regard to painless and easy repair. This I think I have found in the combination of two old methods, and it is as follows:

I will give a practical case. Patient, a hotel-keeper, presented with two left bicuspid of superior maxillary missing. He objected to any mutilation of cuspid. I crowned sixth year molar and soldered slot, about one-eighth by one-sixteenth inch, on anterior surface for retention of removable saddle bridge. Both crown and slot were strong and were made from 32 gauge platina gold plate. Took impression of alveolar ridge and made die and counter of Melotte's metal, and swaged saddle of platina gold plate 35 gauge. Swaged cusps of platina plate 35 gauge of occluding teeth by taking plaster impression of same, trimming, and taking impression of these plaster dies in Melotte's compound, then pouring Melotte's metal into this impression, which gives the only correct and practical form for all occluding surfaces in crown and bridge-work. Filled the platina cusps with solder, ground and adjusted two bicuspid, manufactured by the Protective Supply Co., waxed the palatine surface even with platina gold saddle and platina cusps, taking impression of same with Melotte's compound, making dies and swaging platina gold plate 35 gauge to cover entire palatine surface. Made retention

spring from two pieces of clasp metal. Soldered small spurs on the two pieces of plate and cusps for retention. Invested in plaster, removed the palatine plate and packed with rubber and vulcanized. No rubber showed when finished, except at mesial and distal surfaces; the palatine and alveolar surfaces showing gold; the buccal, porcelain; and the occluding, the platina cusps, which, not being so conspicuous as gold, have a better aspect.

The piece was so accurately constructed that it went to place without any grinding whatever, and was perfect in every respect, giving great satisfaction and comfort.

A THEORY OF WHOOPING COUGH.—Mr. Thomas Jackson writes to *The Lancet* as follows: He has always regarded the disease as primarily affecting the peripheral terminations of the trifacial nerves, and secondarily affecting the pneumogastric. We have a disease of childhood—mumps—which chiefly affects the parotid and sometimes also the submaxillary glands. Is it not likely that some microbe may have an affinity for the sublingual glands, and possibly also the submaxillary, specially affecting their epithelial or secreting structures, and causing to be poured into the mouth a quantity of vitiated saliva swarming with morbid products? The mouth, the fauces, and the stomach become immediately infected with the saliva, and irritation is set up in the terminal filaments of the fifth nerve. This nerve supplies the four glands just mentioned, as well as the papillæ at the base of the tongue and other sensitive parts that would be likely to become affected. The irritation passing up the nerve trunk would involve the other parts—the ophthalmic and superior maxillary. This would account for the redness and suffusion of the eyes and the nasal catarrh. The seat of origin in the brain of the trifacial and vagus nerves are closely approximate; so that it is not difficult to understand that an irritation might be communicated, and that the vagus stimulated in this manner, would set up all the secondary phenomena peculiar to whooping cough. It has been proven that the saliva of man will inoculate the rabbit, and yet no change appears to take place in the blood. There is no metastatic poisoning—in fact, if it were not for the “whoop” the whole train of symptoms could be easily explained as the product of poisoned saliva causing irritation and ulceration at the mouths of the ducts of the frænum lingue—which is generally attributed to the forcible rubbing against the teeth during cough,—causing heat and pain in the mouth and fauces, producing cough, and causing indigestion and sickness, owing to the presence of starch and perverted secretion in the stomach. It is noted that the taking of food excites the cough; and, of course, the process of eating excites the gustatory, and mastication affects the buccal, nerves. He recommends swabbing the orifices of the salivary ducts after each fit of coughing with 5 per cent. solution of cocaine.

Digests.

The American Microscopical Journal for October, 1895.

"A METHOD OF HERMETICALLY SEALING CULTURES OF BACTERIA," by C. F. Dawson, M. D., Ass't. in Dep't. of Animal Pathology, U. S. Dep't. of Agriculture. The special features of the method are that the seal is perfectly hermetical and is easily and quickly applied; it is transparent, and can be removed without destroying the culture tube. By this method cultures can be easily preserved for a long time, probably for several years. Out of one hundred cultures only six became contaminated, and these probably had the contamination in the cotton plugs before the seal was applied.

The method is as follows: Flame the end of the culture tube, and with a pair of flamed scissors trim the cotton plug down even with the mouth of the tube. Flame a thick cover-glass of the same size as the mouth of the tube, and lay it on top of the cotton plug. Soak a piece of sheet gelatine for one-half minute in a solution of bichloride of mercury, 1-1000. Remove the gelatine and knead it between the fore-finger and thumb. The heat of the hand will make it sticky. The gelatine is then placed over the mouth of the tube, stretched a little by passing the nearly-closed left hand over the tube. The cover-glass is for the purpose of preventing bulging out or sinking in of the gelatine cover from changes of atmospheric pressure inside the tube. Now place a small rubber band round the gelatine-covered end of the tube close up under the flange. After two or three minutes, pass a sharp knife round the tube between the band and the flange. The gelatine and band thus cut away can be removed. The edge of the gelatine disc thus made must be pressed against the tube and outer surface of the flange, thus making a self-retaining cap. When dry, usually requiring half an hour, it is given a coat of shellac varnish in order to insure a perfect joint, and to prevent the gelatine from being broken. The varnish is applied by means of a camel-hair brush, and is made from the following formula: Absolute alcohol, 100 parts; white shellac, 45 parts; bals. copaiba, 4 parts. Allow this mixture to stand for a fortnight in a quiet

place, when an amber-colored supernatant liquid has formed. This should be carefully drawn off into a separate bottle having a paraffined cork stopper to prevent evaporation and adhesion of the stopper to the neck of the bottle.

The Journal of Medicine and Science.

"A PRACTICAL POINT IN THE USE OF DISINFECTANTS AND ANTISEPTICS," by A. G. Young, M. D., Augusta, Me. In his paper, "On Disinfection," Koch says: "Yet it is probable that many disinfecting agents, which under ordinary circumstances are inefficient, may become sufficiently active when combined with moderately increased temperatures; possibly also some such substances which have no disinfecting action at all at temperatures about 68° F., as the example of carbon bisulphide teaches, may be used with excellent results at somewhat higher temperatures. Experiments should be made along this line, as the working qualities of only a very few disinfectants are known, and these have been shown to be practically useful only under certain conditions."

Prof. Scalji, of Rome, has shown: Normal urine, when maintained at a temperature of 113° F. undergoes fermentation as readily as when left at from 59° to 77° F. If 5 centigrams of corrosive sublimate are added to one litre of urine, making a solution of 1-20,000, the urine putrefies at the end of several days if left at ordinary temperature; but is preserved a month without a trace of fermentation if kept at 104° F., and the antiseptic action is assured with a dose of only 1-100,000 of the sublimate. Furthermore, when urine which contains 1-100,000 of sublimate is kept at the temperature of 104° F. several days, and then allowed to remain at 58°-68° F., no trace of fermentation appears.

Behring refers to the confirmed fact that a 5 per cent. solution of carbolic acid at ordinary room temperature will not, even after many days, destroy anthrax spores with certainty, but when the temperature of the solution is raised to 99.5° F., their destruction is complete in three hours. Caustic solutions of the alkalis are more or less germicidal according to their strength, but he learned that the alkaline carbonates may become very energetic disinfectants when used at higher than ordinary temperatures. After working with strong solutions of carbonate of soda and of alkaline

soaps, and finding that they, at 158° and 176° F., were rapidly effective, he made a solution of washing-soda about as used in laundries and containing about 1.4 per cent. soda. This solution at 166° - 181.4° F. destroyed anthrax spores in ten minutes, and at 167° F. in twenty minutes. These results surprised him, as he had assured himself of the high powers of resistance possessed by his anthrax spores.

Heider has probably marked out more fully than anyone else the influence which moderately increased temperature has upon the action of disinfecting solutions. We may note the following results, in which anthrax spores served as a test, and the time required to sterilize them is given: Carbolic acid, 5 per cent. solution, at ordinary room temperature, not destroyed from thirty to forty days; at 104° F., four hours; at 131° F., from three-fourths to two hours; at 167° F., from three to fifteen minutes.—Pure carbolic and sulphuric acid, equal parts of each by weight, 5 per cent. solution, at 104° F., in two hours; at 131° F., in thirty minutes; at 167° F., in one minute.—Pure cresol and sulphuric acid, equal parts of each, 5 per cent. solution, at 104° F., in one hour; at 131° F., in five minutes.—Lysol, 5 per cent., at 140° F., sterilization not effected in two hours; at 176° F., sterilization complete in five minutes.—Sulphuric acid, 1 per cent., at ordinary temperature, not sterilized in seven hours; at 167° F., sterilized in seventy minutes.—Caustic potash, 5 per cent. solution, at temperature of room, failed to sterilize in eight to ten hours; at 131° F., spores destroyed in three-fourths to two hours; at 167° F., in two to ten minutes.—Hot water, at 158° F., in eight to nine hours; at 185° F., in forty to forty-five minutes; at 203° F., in fifteen minutes.—Sporeless bacteria, of course, succumb much more readily to the germicidal powers of disinfectants. With *staphylococcus pyogenes aureus* as a test, sterilization was complete at the temperature of 140° F., with carbolic acid, 1 per cent., in five minutes; with carbolic acid and sulphuric acid, 1 per cent., in 1 minute; with caustic potash, 1 per cent., in three minutes; with lysol, $\frac{1}{2}$ per cent., in three minutes.

Several explanations of these facts suggest themselves. One is the well known fact that the intensity of chemical action increases with increasing temperature; another is that moderately elevated temperatures favor the functional activity of bacterial

life and therefore the rapidity with which poisons are absorbed. But when we have to do with sporeless bacteria, and that is the case in nearly all of the real work of disinfection, we have the direct co-operation of moist heat in destroying their vitality, even when the increase in temperature is hardly more than moderate. Practical applications also readily occur. First, they suggest a grave doubt as to the efficacy of some processes of disinfection and antiseptics as they may be carried out during the cold season. Next, they teach the great advantage of using antiseptic and disinfecting solutions warm, or even hot.

Another advantage in using warm disinfecting solutions is shown by Nocht. In the use of the so-called 100 per cent. carbolic acid, its slight solubility in water is a hindrance. Mixed with water in the proportion of 5-100, much of it remains undissolved. If, however, the carbolic acid is added to a hot solution of soap and water, and the mixture stirred, a clear solution is formed. Three per cent. of soap and water at 140° F. will render 6 per cent. of carbolic acid soluble. The germicidal action of the solution is not increased by the presence of the soap, but heightened temperature makes it distinctly more effective. At 122° F. a 5 per cent. solution with soap destroyed anthrax spores in six hours.

The Southern Dental Journal and Luminary for October, 1895.

"CLEFT PALATES—CASES IN PRACTICE," by Dr. Benjamin Simons; read before the South Carolina State Dental Society, July, 1895. A lady of twenty-five presented with congenital cleft palate and very imperfect speech. About two years ago I put in one of Dr. Kingsley's soft rubber palates, the movements of which are dependent upon the motion of the remnants of the palate muscle. As she wore this one year with no improvement of speech, although she could get sufficient closure to blow out a candle, I determined to make her a hard rubber palate and try to educate the superior constrictor muscle. So I made a plate bridging the hard palate and attached it to the teeth with clasps, to which plate was attached at the heel two pieces of metal curving down to about a quarter of an inch of touching the superior constrictor muscle and about on a line with the lower border of the velum. I covered this with wax in ball shape, but the wax

would not conform to the shape properly, so I made a small ball of wax, covered it with soft modelling composition, and while warm replaced in mouth, then placed finger under ball to keep in position and made patient swallow, and repeated same several times, heating ball each time, until I got exactly the impress of the pharyngeal wall and remnants of palate muscles. Then took the impression and ran counter impressions of the piece in sections. Removed model and put in a layer of rubber, cutting a hole in bottom of first piece, then waxed up the balance, filling same with soft plaster, thus making a ball within a ball, then opened and packed it as regular case and vulcanized. Took plaster out of ball through hole cut in rubber as described, put in tin piece, covered with rubber and vulcanized. When finished found ball full of water, drilled hole and blew water out and filled with amalgam. Palate was very light and serves purpose tolerably well. Patient is improving in speech and has great comfort.

The Dental Record for October, 1895.

"THE MICROSCOPE IN DENTISTRY," by J. H. Mummery; read before the British Dental Association, August, 1895. A question of dental pathology which has a strong bearing upon daily practice—concerning the relative penetrative powers of coagulants and non-coagulants in the treatment of root-canals—has been much discussed in America. The view seems to be widely spread that when the pulp dies, the fibrils of Tomes and the sheaths of Neumann undergo decomposition, and that the products thereby formed, even after thorough removal of the pulp, result in discoloration of the entire tooth, and might, by septic examinations, act disastrously upon the pericementum. It does not appear that there is any sufficient evidence in favor of that view, and Dr. Miller has shown that the micro-organisms penetrate but a very little distance along the tubules from the pulp-canal in old, diseased roots, and that very frequently the root-canal in such cases is lined with a secondary deposit which would prevent such penetration, the openings of the tubules being cut off by that means from the pulp cavity. The discussion has been carried on, however, under the assumption that decomposition of the contents of the dentinal tubule actually does take place, and that in treating root-canals, not only the canal itself but the tubuli—and,

to be consistent, the lacunae of the cementum—must be treated. Drs. Harlan, Black, and others, consider that in the treatment of pulpless teeth for purposes of disinfection, coagulants are not only useless, but detrimental. I would mention, in this connection, that Miller long ago determined by experiment that the most powerful coagulants penetrated very rapidly. Dr. C. N. Peirce has lately attempted to show that certain forms of pyorrhea alveolaris are in their origin quite independent of micro-organisms, and are nothing more than the manifestation of a gouty diathesis. This opinion is based on the discovery that the dark brown or greenish deposits on the roots of teeth affected by pyorrhea are found on analysis to contain uric acid and its salts. The significance of this interesting discovery has been considerably diminished by the results of analyses published by Dr. Black, who finds the same urates in ordinary tartar when pyorrhea does not exist. This form of pyorrhea begins at the apex, or between the apex and neck, of the tooth, the gum in the early stages being firmly attached. Allowing this view of the origin of such cases to be true, we should not expect to find micro-organisms, but Dr. Miller has always found bacteria present in such deposits as are described by Dr. Peirce, so that in the present state of knowledge the etiology of even this form of this troublesome disease must be looked upon as not yet thoroughly established.

“CHLOROFORM IN DENTAL SURGERY,” by Dr. Frederick Hewitt, Anæsthetist to the London Hospital; read before the same society. As the chloroform fatalities have been so numerous in the last ten years, the safest anæsthetic should be employed for each particular case; nitrous-oxide for short operations; ether for long ones; and chloroform only when the state of the patient is such that ether cannot be given. The surroundings in dental operations, so far as chloroform is concerned, are not nearly so favorable as in ordinary surgical cases. The most convenient postures to the dentist are the very worst from the anæsthetist's point of view. In addition, there is a point of extreme importance, viz.: that as the operation of tooth-extraction under general anæsthetics often involves some asphyxial condition, either from posture, the presence of blood, the effects of the anæsthetic itself, or other causes, chloroform is contra-indicated, owing to the liability

of the circulation of a chloroformed patient to rapidly fail in the presence of any asphyxial state. This is not so with nitrous-oxide or ether.

Attention should be paid to the following points in the administration of chloroform for dental operations:—1. Seeing that there is a liability when chloroform is used for undetected embarrassment of breathing to arise, it is of paramount importance that the administrator should make *absolutely certain, from the commencement of the administration till consciousness is restored*, that air is entering and leaving the chest. Mechanical obstruction within the air-tract from numerous causes is very prone to arise, and unless the administrator actually hears or feels throughout the administration that breathing is proceeding, he will be very liable to be misled. 2. The administration should be conducted with the patient in the dorsal posture, the head and shoulders being so adjusted by pillows that the head is neither flexed nor extended. 3. Owing to the fact that breathing is liable to become interfered with by either extending or flexing the head upon the trunk (a point to which the author wishes to direct special attention), an attempt should be made to keep the head as far as possible in the longitudinal axis of the body. Should it become necessary to throw the head well back, this should be done when the patient is properly under the anæsthetic, care being taken whilst this extension is present that no blood or extracted teeth gravitate towards the now insensitive and open larynx. 4. Care should be taken during operations upon the lower jaw, or when employing a mouth-gag or prop, that the depression of the lower jaw does not interfere with breathing by causing the tongue to meet the pharyngeal wall. 5. Intercurrent asphyxia from the causes which are given is far more likely to arise during light than during deep anæsthesia, so that the administrator should be on the alert for it just as the patient is entering and leaving the latter state. 6. The patient should be placed deeply under chloroform before any operation is begun. Should any signs of recovery manifest themselves before the operation is completed, care should be taken in re-applying the chloroform; the patient's head should be turned to one side, a free air-way maintained by means of a gag, and from this point onwards only a moderately deep anæsthesia should be kept up. 7. Patients with naso-

pharyngeal adenoid growths, enlarged tonsils, or nasal polypi, should be anæsthetised with special care, owing to the greater tendency to become asphyxiated which such patients naturally display. 8. At the conclusion of the operation the patient should at once be turned upon his side, a gag being placed between his jaws till consciousness is restored. The side posture allows all blood to drain from the mouth and fauces, the tongue to gravitate towards the cheek, and, by reason of the free respiration thus established, chloroform to readily escape from the circulation.

The British Journal of Dental Science for October, 1895.

"ORAL SURGERY," by Edmund W. Roughton, B. S., M. D. (Lond.), F. R. C. S., Eng. Chronic Alveolar Abscess. There are two forms, the *fistulous* and the *blind*. The fistulous variety is nearly always the sequel of an acute abscess which has failed to heal, owing to the exciting cause remaining in action, but in some cases the inflammatory process may have been chronic from the first. The orifice of the fistula is usually situated at the spot where the original abscess burst, this being, as already stated, on the gum over the affected root; but the original opening may close and a second one form in some other situation, with or without an exacerbation of the inflammatory symptoms. This process may be many times repeated, so that eventually the discharging opening may be far removed from the original source of trouble. The direction followed by the pus is determined by the resistance of the tissues encountered and by gravitation; hence it happens that the opening is usually found below the source of the pus. In the case of the lower jaw, the pus may find its way to the surface near the lower border of the bone, or entering the cellular tissue of the neck it may travel downwards even as far as the clavicle. In the upper jaw the opening, when on the face, is most commonly found just below the prominence of the malar bone, in the centre of a rounded depressed scar fixed to the bone by a fibrous cord. Sometimes the pus may burrow in the direction of mucous surfaces other than the mouth; an abscess at the root of an upper incisor may sometimes discharge into the nose, leading to a mistaken diagnosis of ozaena being made. Abscesses at the roots of the upper molars, especially the first, may open into the antrum, producing an empyema of that cavity.

The blind variety of alveolar abscess has no external opening, and is simply a collection of pus in a bony cavity formed around the root of the affected tooth. A blind abscess may result from the closing of a fistulous opening, but, as already mentioned, the usual course is for the pus to find vent again either at the same or some other spot. In other cases the bacteria from the pulp chamber, being of but low pyogenic power, may have set up suppuration of such an extremely chronic kind that the resulting abscess has remained quiescent and has never sought an external opening.

Symptoms.—When the opening of a chronic fistulous alveolar abscess is immediately over the root of a carious tooth, the condition is at once recognized on inspection, but when the opening is remote the difficulty of diagnosis may be much greater. In such cases the employment of a fine probe may trace the sinus in the direction of a carious tooth, but sometimes the track is so narrow and devious that we do not gain much information by this means. In doubtful cases the condition of the teeth should always be carefully inquired into, and it should be borne in mind that the offending tooth is not necessarily a decayed one; a tooth pulp may die and lead to apical trouble, while the tooth still retains appearances of integrity which may deceive those not experienced in dental affections; again, the offending tooth may be "impacted," and therefore out of sight. Not unfrequently the sinus is kept open by the presence of a small sequestrum, and will not close until this has been removed.

Treatment.—The treatment of a chronic alveolar abscess consists in rendering the pulp cavity and apical space of the offending tooth aseptic. If this cannot be accomplished, or the prospective utility of the tooth does not warrant the attempt, extraction should be performed. When the case is complicated by necrosis, the sequestra should be removed as soon as they are loose. Even when necrosis has involved a considerable portion of the alveolar border, the loosened teeth may sometimes be saved by careful dental treatment, and the new bone thrown out from the periosteum will afford in time a firm socket. In cases of abscess discharging on the face, an attempt should be made to divert the discharge into the mouth. The depressed scar which is left by such an abscess may be much improved in appearance by dividing

the fibrous band which binds it down to the jaw by a fine tenotome entered from the mouth.

Necrosis of the Jaws. *Causes.*—The immediate cause is deprivation of blood supply. This may be brought about in different ways; it may be the direct result of injury, a portion of bone being broken off and completely severed from all vascular supply; but in the majority of cases necrosis results from inflammation of the bone or its periosteum, the circulation being arrested by the pressure of the inflammatory exudation. Inflammation leading to necrosis may be due to several different causes; it may have started in a neighboring tissue and have spread to the jaw (*e. g.* cancrum oris); it very often starts in connection with a decayed tooth; it may be the result of certain chemical substances, such as caustics, mercury, and phosphorus; it may be due to the presence in the blood of the specific poison of such diseases as smallpox and other exanthemata, acute necrosis (infective panosteitis), syphilis or struma; lastly, the cause of the inflammation may be undiscoverable, it is then spoken of as "idiopathic." The causes may be arranged thus:—1. Injury. 2. Spread of inflammation from—(a) dental disease; (b) cancrum oris, etc. 3. Chemical agents—(a) caustics; (b) mercury; (c) phosphorus. 4. Blood disorders—(a) exanthematous fevers; (b) infective panosteitis (acute necrosis); (c) syphilis; (d) struma. 5. Idiopathic.

Pathology.—The mandible is more liable to necrosis than the maxilla; this is owing to two causes: firstly, the mandible is largely composed of compact osseous tissue, and therefore inflammatory products are pent up under great tension and stasis of the circulation is very apt to result; secondly, the mandible is almost entirely dependent for its blood supply on the two mandibular arteries, which are deeply placed and almost isolated from collateral circulation, whereas the maxilla enjoys a rich blood supply from numerous vessels which anastomose freely. The process by which the bone perishes and becomes cast off as a sequestrum does not differ from that occurring in other bones, but the process of repair presents certain peculiarities deserving of notice. In the maxilla repair is remarkably feeble. As a general rule in adults there is no repair whatever; a gap remains and is not filled in. In a very few cases some formation of bone has been noticed, but

these are quite exceptional. In children the gap becomes filled up to a large extent by fibrous tissue, but no new bone is developed. In the mandible the process of repair is remarkable for the completeness with which it is often carried out, although a few cases of non-repair are on record. As soon as the acute inflammation has subsided, the periosteum begins to throw out new bone and encloses the sequestrum in a casing which is perforated by cloacæ through which pus escapes. When the sequestrum has escaped, or has been removed, the cavity thus left is rapidly filled in by granulation tissue which subsequently ossifies. In this way large portions of the jaw may be reproduced. The museum of St. Bartholomew's Hospital contains a remarkable specimen, showing how complete this reproduction may be. The patient, a lad of 18, from whom the specimen was obtained, suffered from phosphorus necrosis; six months before death the whole of the mandible was extracted; in a few weeks there was evidence of formation of new bone, and the process extended with such rapidity that at the time of the patient's death the whole bone with the exception of the alveolar process had been reproduced, the new mandible resembling that of an old edentulous person. Heath mentions a case in which he extracted several large sequestra, including the right condyle, and yet such perfect repair ensued that the movements of the jaw were as free as if the articulation had not been interfered with. In patients who survive it is found that the reproduced bone is not permanent, but slowly becomes absorbed, being reduced to a mere arch; this is probably an example of atrophy from disuse; the new member being edentulous, is not sufficiently exercised to preserve its nutrition. As a general rule the teeth belonging to the necrosed piece of bone are lost, but this does not always happen; sometimes the alveolar border escapes death and is still able to retain the teeth *in situ*.

Symptoms.—The symptoms of necrosis vary considerably in different cases, and will be described when dealing with the different varieties of necrosis. At present it will suffice to say that the symptoms may be grouped under three chief heads: (a) Those of the disease of which the necrosis is the result. (b) Those directly due to the presence of the sequestrum. (c) The constitutional effects.

Treatment.—The following indications are common to most cases of necrosis. (a) *Treatment of the Cause.*—When possible the cause should be removed before the evil effect is produced; thus in those who work in phosphorus, or mercury, precautions should be taken to prevent these substances from producing necrosis, and in suppurative affections of the jaws steps should be taken to prevent separation of the periosteum, by making timely incisions. (b) *Evacuation of Pus.*—Free incisions should be made (from within the mouth if possible) so as to provide free drainage; retained pus is apt to decompose, and to aggravate the local condition as well as the general health. (c) *Antisepsis.* The mouth must be kept as clean as possible, by the frequent use of mouth-washes or boracic acid; if the patient is unable to use a mouth-wash, the parts must be well syringed, or mopped over with absorbent cotton wool steeped in some suitable antiseptic, and then dusted with iodoform, or boracic acid powder. Cavities in the bone may be lightly packed with sal alembroth gauze soaked in glycerine emulsion of iodoform. (d) *Removal of Sequestra.* Sequestra should not be removed until they are loose, but if a projecting piece of dead bone is a source of much annoyance, a portion of it may be clipped off with bone forceps even though it is not yet detached. In cases of extensive necrosis the sequestrum should not be removed until the case of new bone has attained sufficient strength to preserve the outline of the parts. When the whole bone has necrosed it is necessary to divide it at the symphysis to extract the sequestrum. Incisions for the removal of sequestra should be made within the mouth when possible; when occasion necessitates their being made from without they should be planned so that they may leave as little deformity from scarring as possible. Some surgeons prefer to remove the dead bone at as early a period as possible without waiting for it to become detached, but the plan is not to be recommended. (e) *Constitutional Treatment.* The patient's food must be adapted to the condition of his mouth; as mastication is in most cases impossible, the diet must be restricted to fluid, or soft solid articles, such as milk, soups, essences, eggs and finely minced or pounded meat. When the sequestrum is large and prolonged suppuration occurs, the judicious use of stimulants coupled with the exhibition of quinine and iron is desirable. The swallowing

of pus is apt to derange the digestive system and necessitate the use of drugs to regulate the action of the bowels and improve the appetite.

Traumatic Necrosis. Necrosis has already been referred to as an occasional complication of fracture of the jaws. It may be brought about in two ways: (*a*) in a comminuted fracture a piece of bone may be separated from its vascular connections to such an extent that it dies; (*b*) suppuration may ensue and pus may burrow beneath the periosteum, and by separating it from the subjacent bone lead to the death of the latter. In this way much bone may be lost and great deformity and impairment of function may result. Necrosis should be suspected and looked for in any case of fracture which goes on suppurating and makes little or no attempt at union. The removal of the sequestrum will soon be followed by consolidation of the fracture. Necrosis of a piece of alveolus may follow the extraction of a tooth; this may be due to death of a small piece of bone which has been fractured during the operation, but is more often due to osteitis set up by the tooth before removal.

Necrosis of Dental Origin. Dental disorders may lead to necrosis in three ways: (*a*) Acute periodontitis may, without the formation of an abscess, extend to the alveolus, setting up osteitis of sufficient intensity to produce necrosis. Such necrosis may be limited to the socket of one tooth or may affect several; (*b*) an alveolar abscess may form in the manner already described and strip the periosteum from its bony attachment, instead of perforating that membrane and becoming evacuated. Thus extensive necrosis may result, especially in the lower jaw. In the upper jaw extensive lifting of periosteum may occur without producing necrosis, the bone being kept alive by the blood supply derived from its opposite aspect; (*c*) an abscess not infrequently forms around an impacted lower wisdom tooth, the pus burrows and strips up the periosteum, causing death of the underlying bone.

Necrosis Secondary to Ulceration of the Mouth. Necrosis may result from the invasion of the jaws in cases of cancrum oris, severe ulcerative stomatitis, or ulcerating malignant growths. In such cases the necrosis is of comparatively slight importance, the disease of which it is a complication being so formidable as to overshadow the lesser condition.

Necrosis from Caustics. A very powerful caustic may cause immediate death of bone by destroying it in the same way that a piece of wood would be charred by strong sulphuric acid; but when necrosis follows the use of caustic substances, such as arsenious acid, or chloride of zinc employed in dental practice, it usually results from the application exceeding the action it was intended to produce and setting up acute inflammation in the adjacent bone.

Mercurial Necrosis. This was a common affection in the days when syphilis was treated by large doses of mercury, and when the drug was not considered to have done what was required of it unless profuse salivation was produced. It was also common amongst men employed in the manufacture of mirrors when liquid mercury was used. At the present day mercury is much more sparingly used in the treatment of syphilis, and the method of silvering glass in the manufacture of mirrors has been improved, so as to diminish the risk that the workers are exposed to, consequently mercurial necrosis is now a rare condition, being practically only seen in patients who are peculiarly sensitive to the action of the drug. The effects of absorption of an injurious amount of mercury into the system are an unpleasant metallic taste and a general inflammatory condition of the mucous membrane of the mouth. The tongue becomes furred, tender, swollen and indented by the teeth. The gums become reddened at their margins, swollen and tender. The periodontal membrane becomes inflamed, the teeth loosened and raised from their sockets and tender when pressed on. The inflammation extends to the alveolar process, setting up osteitis which may be severe enough to terminate in necrosis. In some cases the osteitis and resulting necrosis is not limited to the alveolus, but may involve the whole thickness or even the whole extent of the jaw. In St. Bartholomew's Hospital museum there is a specimen of necrosis of the whole of the lower jaw which followed the administration of a few grains of calomel in a case of fever; it is possible that in this case the fever itself may have been a part cause of the necrosis. In cases of chronic mercurial poisoning the hands and arms become tremulous, the patient becomes cachectic, sallow, emaciated and weak. The most important point in the treatment of mercurialism is to remove the patient from the baneful influence of the

drug before serious harm has resulted. The elimination of mercury from the system may be hastened by the administration of iodide of potassium. The catarrhal condition of the mouth is best treated with frequent rinsing with a two per cent. solution of chlorate of potassium. Should necrosis ensue it should be treated on the principles already indicated.

Phosphorus Necrosis. This was unknown prior to the invention of lucifer matches; it was first recognized some ten years after the establishment of manufactories in London. The disease is caused by the inhalation of fumes emanating from phosphorus, consisting chiefly of phosphorus and phosphoric acids (H_3PO_3 and H_3 and PO_4). These fumes become dissolved in the saliva and act locally upon the alveolar periosteum, which they reach through carious teeth. In opposition to this statement, various writers have held the following three views, all of which are probably wrong:—(a) that the disease is caused by arsenic, which is sometimes admixed with the phosphorus, (b) that the phosphorus is absorbed into the system and reaches the jaws by the circulation instead of directly by the saliva, and (c) that it occurs in persons with sound teeth. The two jaws are about equally liable to the disease; if anything, the mandible is affected slightly more often than the maxilla. The disease usually does not show itself until the worker has been exposed to the fumes for a long time, probably never under a year. On the other hand, it may occur some months after the person has ceased to have anything to do with phosphorus. The early symptoms are those of periodontitis. There is toothache, at first intermittent, but afterwards continuous. The gums swell and become separated from the necks of the teeth, which are loose and tender on pressure. Pus wells up from the sockets. The tissues of the cheek are always much swollen; in some cases when the inflammatory symptoms are at their height, the swelling may involve the whole side of the head and face and even the neck. In most cases openings form upon the face as well as inside the mouth, and from them pours a copious discharge of sanious offensive pus. The constitutional symptoms are severe and are due to septic absorption, to the ingestion of decomposing pus, to inability to take food, and to the severe pain which is endured. Death may occur at an early period, when the inflammatory condition is at its height, or the patient may survive

this stage to perish later from exhaustion, due to long continued hectic and suppuration. In some cases recovery with extensive scarring and deformity ensues. No repair occurs in the maxilla, but in the mandible the new bone formed by the periosteum closely resembles pumice stone, and adheres firmly to the sequestrum, some of it usually coming away when the latter is removed. Microscopically this pumice-like deposit presents the following peculiarities:—The Haversian canals are very large, and are at right angles to the bone, instead of parallel to it; they interlace and end with open mouths on the surface; the deposit is laminated in structure, and its matrix is brittle and powdery. This curious formation is almost peculiar to cases of phosphorus disease, but has occasionally been met with in necrosis due to other causes. The most important point in the treatment of phosphorus disease is prevention. Amorphous phosphorus is innocuous, and should always be employed instead of the injurious variety. Persons who are compelled to work with ordinary phosphorus should observe scrupulous cleanliness and should work in well-ventilated rooms. They should take great care of their teeth, and should have any carious spots carefully filled. No persons with carious teeth should be exposed to the fumes of phosphorus. Should the disease occur, the person affected should be at once removed to healthy surroundings and any suspicious teeth extracted; any swelling of the gum should be very freely incised. When necrosis has actually occurred, treatment must be conducted on the general principles already described.

Exanthematous Necrosis. Necrosis of the jaws is one of the numerous sequelae which may occur during convalescence from the eruptive fevers. It is commonest after scarlet fever, but occurs also after measles, small-pox, and typhoid. It is most often met with in children of about five, an age at which developmental changes in the teeth are actively proceeding. The necrosis does not commence until some weeks have elapsed since the subsidence of the fever, and the extent of the necrosis bears no relation to the severity of the original disease; very often the patient seems in good health.

Symptoms. The onset of the disease is insidious; there are no active inflammatory symptoms and pain is usually slight or absent; foetid breath is about the first symptom that directs attention to

the mouth. On inspection it is then seen that the gum is red and tumid and more or less stripped up, leaving the subjacent alveolus bare, and that from beneath the gum foetid pus exudes. As a rule the necrosis is limited to the alveolus and is symmetrical, that is to say it affects the same parts on both sides of the jaw either simultaneously or in rapid succession; but this is not always so.

"Acute Necrosis" (Infective Panosteitis). This disease, which is probably the effect of a specific micro-organism in the blood, is most commonly seen in the tibia, but sometimes affects the jaws. It has been described by Senftleben under the name of "acute rheumatic periostitis." It may occur in healthy persons with sound teeth after exposure to cold. It is accompanied by violent pain, great swelling of the affected part and intense fever. The most important point in the treatment is to make free incisions into the swollen part whether suppuration has occurred or not.

Syphilitic Necrosis. Affections of bones in secondary syphilis are usually slight and transitory, but in the tertiary stage inflammation of bone and periosteum is apt to produce necrosis. The lower jaw is but rarely affected. It is in the palatine process of the superior maxilla that syphilitic necrosis is often met with. In some cases the sequestrum does not involve the whole thickness of the bone, and no perforation of the palate results; in other cases a small perforation occurs, but closes again when the sequestrum has come away; in more severe cases a permanent perforation of the palate results, causing marked impairment of speech; occasionally a large sequestrum from the hard palate may be discharged through the nose without the muco-periosteum of the mouth being damaged.

Treatment. Iodide of potassium must be administered until the sequestrum has come away and all inflammatory trouble has ceased. With this drug, tonics such as quinine and cinchona may be advantageously combined. The mouth must be kept clean with antiseptic washes. Should a perforation of the palate occur, it should be covered over by a well-fitting obturator attached to the teeth; on no account should the opening be plugged, as the constant pressure thus exercised would enlarge the aperture by causing absorption of the surrounding bone. The museum of St. Bartholomew's Hospital contains a curious specimen illustrating

this point. It is the skull of an old woman who had lost the whole of her hard palate. She had filled in the gap with a bung of cork, around which was wound a quantity of tape to adapt the plug to the increasing size of the aperture. In some cases where the aperture is small and the general health good, the parts may be successfully restored by a plastic operation.

Strumous Necrosis. Strumous inflammation of the jaws is not common, but one sometimes sees cases of chronic osteitis and periosteitis of the jaws, usually the mandible, in young strumous subjects, in which extensive caries and necrosis result. The treatment consists in improving the general health by tonics, sea-air, etc., and in scraping away all the carious bone and diseased periosteum.

Idiopathic Necrosis. One sometimes meets with cases of necrosis of the jaws to which it is impossible to assign a cause. Their treatment must be conducted on general principles.

EMPYEMA OF THE MAXILLARY ANTRUM. This disease may result from blows on the face, with or without fracture of the maxilla, operations involving the antrum, the presence of foreign bodies in the cavity, and the occurrence of necrosis of its bony wall; but in the great majority of cases empyema is secondary either to *nasal* or *dental* disease. Authorities differ as to the relative frequency of these two chief causes; dental surgeons see more cases arising from dental than from nasal diseases, but with specialists in diseases of the throat and nose this experience seems to be reversed. With regard to the causal connection between antral and nasal disease our knowledge is not at present very definite. It is well known that the mucous lining of the antrum is anatomically continuous with that of the nose and that therefore inflammatory affections starting in the latter may spread by continuity to the former. It is probable that acute nasal catarrh may spread to and involve the antrum, but our present means of diagnosis do not enable us to recognize an inflammatory condition of the antrum which has not gone beyond the catarrhal stage. Chronic hypertrophic conditions of the nasal mucous membrane, especially in the region of the middle meatus, are often found to be associated with similar conditions of the antral lining, and so-called mucous polypi, which are now regarded by most authorities as being of inflammatory origin, are not infrequently found

coexisting in the middle meatus and in the antrum. In some cases nasal polypi seem to be the result of the irritation produced by pus flowing from the antrum, and in others, according to some, antral trouble is secondary to and dependent upon the presence of polypi in the region of the ostium maxillare. With regard to the dental causes of empyema antri our knowledge is more definite. We know that the roots of the first and second molar teeth often form prominences in the floor of the antrum and are only separated from the mucous lining by a very thin plate or bone; in the case of the first molar even this thin bony covering is sometimes absent, so that an abscess occurring at the apex of one of the roots would open into the antrum more readily than elsewhere. Sometimes an alveolar abscess in connection with a canine or incisor tooth may open into the antrum, although the roots of these teeth are not usually in relation with this cavity. Clinically, cases of empyema antri may be subdivided into two classes which differ greatly in the symptoms manifested. In the first variety the ostium maxillare is patent, and the patient's complaint is of a discharge from the nose; in the second variety the ostium is blocked, and the complaint is swelling of the face.

Empyema with Patent Ostium Maxillare. The discharge from the nose is nearly always from one side only, but sometimes both antra are affected and the discharge is bilateral. It is intermittent, coming away when the patient's head is placed in any position which puts the ostium maxillare below the level of the fluid in the antrum, thus in the recumbent position, especially when lying on the side opposite to the affected antrum, the pus trickles down the throat and is swallowed or expectorated; in the erect position pus flows from the nostril on inclining the head forwards and towards the healthy side. It is often stated as a diagnostic point that if pus appear in the middle meatus, after the cleansing of the nose, on the patient going on his hands and knees and hanging his head down and inclined away from the affected side, the source of the discharge must be the antrum; but it must be remembered that the same phenomenon may be produced in cases of empyema of the frontal sinus. The discharge has an odor like that of bad fish; the smell is perceived by the patient but not by those around him. The constant swallowing of decomposing pus is very apt to upset the digestive functions

and may seriously impair the general health. Pain is usually absent or very slight. Swelling of the face does not occur except from some other cause.

The following methods of examination may be used to complete the diagnosis:—(a) *Catheterisation of the Ostium Maxillare*. It is possible to pass a hollow instrument into the antrum through the ostium and to draw off pus, but the method of examination has not been found to be of any practical value. (b) *Percussion* over the maxilla may yield a difference of resonance on the two sides, but the size of the air chamber is insufficient to give a percussion note of any real diagnostic value. (c) *Transillumination* is of considerable value. An electric lamp is introduced into the patient's mouth. The room must be quite dark. When the oral lamp is turned on, the cheeks and lower eyelids become illuminated; sometimes the pupils are illuminated and look dullish red instead of black, and the patient himself may perceive the light which reaches his eyes through the maxilla. In well-marked cases of unilateral empyema the transillumination is much greater on the healthy than on the diseased side, especially in the outer part of the infra-orbital region. Although very valuable, transillumination is not always conclusive, since the bones may not be symmetrical in thickness, or the antra in size, shape and partitioning. Sometimes both sides of the face remain opaque on transillumination; this may be due to the presence of an empyema on both sides or it may be due to universal opacity of the tissues or to insufficient illumination power in the lamp. (d) *Exploratory puncture* is the only certain means of diagnosing the presence of pus in the antrum. The puncture may be made through the empty socket of the first or second molar tooth, through the canine fossa, or through the inferior meatus of the nose. The exploratory puncture should be performed as aseptically as possible lest supuration be set up in a previously healthy antrum.

Treatment. There is considerable divergence of opinion as to the best method of treating these cases. In a few cases due to dental decay the disease disappears spontaneously after removal of the offending tooth, but in the vast majority of cases it is necessary to drain the antrum and irrigate its cavity with antiseptic and astringent lotions. The following are the most common methods of treatment:—(1). *Opening through Alveolus*. This is

usually done after extracting a decayed molar tooth. An opening is made into the antrum through the apex of the alveolus with a dental engine drill. Sometimes after extraction it is found that the socket already opens into the antrum; it is then only necessary to enlarge the opening to a size sufficient to admit the drainage tube; this may be accomplished with a bur about 3-16 of an inch in diameter. The drainage tube should consist of a plain straight gold tube attached to a plate fitting the adjacent teeth. The lumen should be at least an eighth of an inch in diameter; many tubes are made so narrow that the smallest drop of pus occludes them; the upper end of the tube should just reach the antrum, and should not project into it or will not act as a drain until the pus has accumulated in the cavity sufficiently to reach the level of the extremity; the mouth of the tube should be provided with a plug which can be inserted by the patient at meal times so as to prevent the entrance of food. The tube having been satisfactorily adapted, the patient is prescribed a lotion consisting of ten grains of sulphate of zinc and ten grains of carbolic acid to the ounce of water; of this lotion one teaspoonful should be added to a tumbler of tepid water for each injection. The patient, seated before a mirror, injects until the fluid returns clean through the nose. The injection is performed twice daily, and then at longer intervals as the discharge diminishes. When the injection brings away no pus after a week's interval, the tube may be removed. In this way many cases may be cured, but the treatment must usually be carried on for five or six months. (2). *Opening through the Nose.* The natural opening into the meatus is much too high to be of any value for purposes of drainage or irrigation. It is therefore necessary to make an opening through the outer wall of the inferior meatus. The opening should be made by means of a trocar introduced through the outer wall of the meatus well behind the anterior extremity of the inferior turbinated body so as to avoid injuring the nasal duct. The cavity is then washed out with a suitable antiseptic or astringent lotion. In this method of treatment, the injection cannot be done by the patient himself. (3). *Opening through the Canine fossa.* The lip having been well retracted, an opening is made about half an inch above the margin of the alveolus and half an inch external to the prominence produced by the root of the canine tooth. If it is only desired to

wash out the cavity it will suffice to puncture with a trocar and canula. The opening may be kept patent by means of a small spiral spring tube attached to the teeth. If it is desired to explore the interior of the antrum, and curette the lining membrane, it is necessary to make an opening with a chisel or gouge large enough to admit the finger. In making such a large opening it is desirable to leave the disturbed portion of bone still attached by one aspect so that when the operation is concluded it may fall back in place like a valve. No bone should be completely removed.

It now remains to discuss the all-important question as to what method of treatment should be adopted in any given case, and here the great difficulty we have to contend with is that we are unable to discover the exact nature of the pathological changes which have taken place in the antrum; we do not know whether the mucous lining is simply inflamed and secreting pus, or whether it is greatly thickened and altered in structure, or whether polypi are present, or whether there is any necrosis of the bony wall, or whether the cavity is divided by septa to such an extent as to render drainage by a single opening impossible. These considerations, coupled with the tedious course that these cases often pursue under treatment, have led some surgeons to advise the making of a large canine fossa opening in every case; but other surgeons, recognizing the fact that many cases are cured by simple drainage and irrigation, object to the performance of the operation. For my own part, if there is a carious tooth present, I advise that it should be extracted, and the antrum drained and irrigated through the vacant socket in the manner already described. If the disease is not cured in six months, I advise the making of a large canine fossa opening, so that the nature of the antral disease can be discovered and dealt with effectually. In cases which refuse to get well with alveolar drainage properly carried out, it is usually found either that the mucous lining is much thickened and polypoid in nature, or else that the presence of septa has prevented the whole of the cavity from being drained. Diseased mucous membrane should be removed with a curette and obtrusive septa should be cut away. If the ostium maxillare should be found blocked, it is desirable to make an additional opening through the inferior meatus. After the operation the antrum should be filled with a long strip of gauze soaked in iodo-

form emulsion; after twenty-four hours the gauze is removed, and the cavity syringed twice daily until the discharge ceases; this usually occurs in a fortnight or three weeks. Some operators have found great difficulty in getting the opening to close, whilst others have complained of inability to keep the opening patent long enough to effect a cure; the tendency of the opening to close, or remain open, depends on the size of the original opening, and whether any bone has been removed or not. If care be taken to make the opening in the way described, it may be kept open as long as desired by the introduction of some form of plug, and will close spontaneously when allowed to do so. If there is no carious tooth present it is not justifiable to remove a sound one for purposes of alveolar drainage. In such a case drainage and irrigation should be effected through the nasal route if the patient can attend often enough, or through a small canine fossa opening if he must himself conduct the after-treatment. If there is any polypoid condition in the nose and no evidence of dental disease, it is advisable to proceed at once to exploration of the antrum by means of the large canine fossa opening.

Empyema with Blocked Ostium Maxillare. When the opening into the middle meatus is blocked the symptoms differ widely from those just described. There is no nasal discharge, but the pus increasing in quantity distends the antrum, producing a swelling on the face. The rapidity with which this distension occurs varies considerably in different cases. Sometimes the distension is rapid and is accompanied by symptoms of acute or subacute inflammation; there is pain at first of a dull deep-seated character, but soon becoming more acute and lancinating and attended with tenderness of the cheek and general febrile disturbance. Sometimes the distension takes place not only in the direction of the cheek but also towards the nose, obstructing respiration on the affected side, and towards the eye, displacing that organ and interfering with its function. In the acute or subacute varieties the empyema soon bursts either into the mouth, the nose or the orbit, in the latter case producing dangerous and sometimes fatal cellulitis. In the more chronic cases the distension extends chiefly in the direction of the face, producing a swelling indistinguishable from a cyst except by exploratory puncture. In such a case the important point in diagnosis is to determine that

the antrum is distended by fluid and not by a new growth. It is often possible to obtain fluctuation and the so-called egg-shell crackling through the thinned-out bony wall, but no time should be lost in making an exploratory opening, the surgeon being prepared at the time to grapple with any morbid condition he may find.

Treatment.—The swelling must be freely opened where it bulges inside the mouth and the contents of the antrum dealt with according to the condition found. An opening should be made in the inferior meatus if the patency of the ostium cannot be readily re-established. Any carious tooth in connection with the antrum should be removed.

The Pacific Stomatological Gazette for October, 1895.

"DENTAL JURISPRUDENCE, INFECTION," by H. R. Wiley, A. B., San Francisco. There has not been much litigation on account of the infection of disease through the use of dental instruments. Supposing that the average number of thoughtless or careless individuals may be found among the members of the dental profession, it is but reasonable to presume that many serious cases of poisoning have been caused by the use of unclean instruments. Though this view of the matter may not be sustained by our courts, yet the annals of the profession establish it to a moral certainty. Dr. Rehfuß cites a number of cases in point, collected from the *Dental Mirror* and other sources. The majority of the cases referred to were of syphilitic poisoning, presumed to have been caused by slight abrasions produced by the slipping of the instruments during dental operations. Though each of these cases seemed traceable directly to the operations of the dentist, and no reasonable theory appeared by which to explain the inoculation, yet it is possible that in more than one case the dentist was unjustly blamed.

When we consider the fact, that it is held, upon good authority, that infection of such a disease may occur through the simple and evanescent agency of a kiss, or through contact of the inner surface of the lip with the poisoned surface of a drinking cup, we cannot fail to realize that serious difficulty must attend the efforts of the investigator who would arrive at any degree of certainty on the point under consideration. An appreciation of the diffi-

culty referred to undoubtedly has deterred some individuals from prosecuting suits for damages against dentists, through whose supposed criminal carelessness they believed themselves to have suffered. The danger of infection, through the medium of surgical instruments, is now fully understood by the intelligent practitioner, and has been ably met by the introduction of antiseptics. A thorough disinfection of surgical instruments both before and after an operation, is now recognized as an essential principle in surgery, and is applicable to its every branch. The general recognition of this principle by the profession involves an increase of responsibility on the part of the dentist, and therein lies its legal significance.

The law demands of the dentist that he shall, in all matters involving serious danger to his patient, reduce that danger to a minimum by the use of such means as are recognized and advocated by the authorities of his profession, or such other means as may be proven to be equivalent thereto. If the dentist does not possess reasonable knowledge of the proper means and methods to employ in a given case, he is chargeable with ignorance; if he possesses the knowledge of the means, but neglects to use them skillfully, he is chargeable with negligence, and under either condition is liable for any injury proven to be the direct result therefrom. The dentist's safe course lies in acquainting himself with the best means and methods in present use in his profession for preventing infection, and in the employment, uniformly, of those means and methods in his practice. In case of suit for damages for injuries alleged to have been caused by the use of unclean instruments, in the absence of absolute proof connecting the injury with the operation, the dentist will find a strong defense in being able to prove that he has followed the course above outlined.

"LONGEVITY," by F. H. Metcalf, D. D. S., Sacramento; read before the California State Dental Ass'n., July, 1895. People who live long, and retain their mental and bodily vigor, keep good hours and lead active lives. People rust out quicker than they wear out. Nutrition of the body can come only through the activity of the body. Food, no matter how nutritious, is not easily drawn into the system, or assimilated, unless muscular activity is going

on. Our lives, our dispositions and our mental capacity are regulated by what we eat, and there are few cases of ill-health that proper diet will not alleviate, but the trouble lies in the fact that it is cheap; the demand is for a cure that costs money. What a true saying: "Free prescriptions don't cure." How few people ever think or know of what elements the body is composed, and what food is required to maintain these according to climate, season, age, environment, etc.

The fourteen elements of the body are as follows: Oxygen, carbon, hydrogen, nitrogen, calcium, phosphorous, sulphur, sodium, chlorine and fluorine, iron, potassium, magnesium, silicon. There are seventeen combinations of the fourteen elements of food: Water, gelatine, fat, phosphate of lime, albumen, carbonate of lime, fibrin, fluoride of calcium, phosphate of soda, phosphate of potash, phosphate of magnesia; chloride of sodium, sulphate of soda, carbonate of soda, sulphate of potash, peroxide of iron, silica. The processes of life in the body have the following divisions: First, the governing portion, the brain; second, the executive portion, the muscular system; third, the fuel, which, in a chemical sense, keeps up the supply of heat, which is the source of all activity and motion. Food must supply these three great divisions of the process of life in the proper proportion, or something will soon go wrong, though nature allows a wide margin. Of the fourteen elements needed in the body, and which must be supplied in the food taken to satisfy the great demands, vitality, strength and heat, I shall classify under the general terms, as follows (the words being used in their proper, and not chemical sense): The phosphates, in which phosphorous predominates, supply vitality or brain, nerves and bone; nitrates, in which nitrogen predominates, supply the muscles with strength; carbonates, in which carbon predominates, supply heat and make fat.

It is a lamentable fact that most people know nothing of the nature of the food they eat, yet wonder why they don't feel well. In most private houses, and particularly hotels, the *menu* does not vary with the seasons. Carbonates are as liable to predominate in hot weather as in cold. No profession offers better opportunities for spreading the truth than dentistry. The best brain foods, or phosphates, are lean meats, fish, cheese, crabs, wheat, barley, oatmeal, almond nuts, Southern corn, beans, peas, potatoes, figs

and prunes. The best carbonates, or heat-producers, are fat meat, sugar, butter, rice, rye, chocolate, dates, buckwheat, Northern corn, white flour; excess in this branch is the cause of poor health, poor blood and bad skin. The best of the nitrogenous foods, or muscle-makers, are vermicelli, eggs, cheese, meats, particularly beef, Southern corn, salmon, beans and peas. Phosphatic foods, for persons of strong mentality and for those who study much, cannot be too strongly urged. Coffee and tea are responsible for many nervous disorders. Many persons injure their stomachs by taking their food in too concentrated a form; they need more food for waste, fruit and vegetables, to distend the stomach, so that it may secrete the juices. Crabs and lobsters contain a great quantity of brain and muscle food, but are so concentrated that they should not be eaten within several hours of retiring. Hearty food should never be taken at night; it causes restlessness and twitching of the muscles. Oysters are easily borne by the most delicate stomachs. They are composed of 12.6 nitrates, 2 of phosphates, balance waste. To sum up: on cold days eat heaters and muscle-makers; hot days, vitalizers and wastes, fruits; tired days, muscle-makers and phosphates; headache days, vitalizers.

Zahnärztliche Rundschau for October, 1895.

"IMPROVED AMALGAM FILLINGS," by Dr. M. S. Mannhardt, Berlin, Germany. It is a well known fact that amalgam fillings do not prevent or arrest further decay. The convenience and ease with which they are prepared, as well as the enticing new brands which are constantly being placed on the market, with the invariable recommendation "that the amalgam is faultless and free from injurious effects," induce the great majority of practitioners to gladly and freely employ the article. Later they become aware that the old is fully as good as the new. However, we are compelled to resort to plastic fillings, as it is unreasonable to suppose that all patients can afford gold fillings, which are durable to a great extent.

The great difficulty with the amalgam filling is that the edge is not sufficiently strong and lasting, and that we have not as yet an ideal or non-shrinkable amalgam. The fissure which results from the shrinking or "globing" is sufficiently large to permit the

saliva and its accompaniments to enter, and secondary caries results in consequence. This objection to amalgam can however be overcome, and a perfect filling be inserted, if the operation is performed as I here suggest. I advise that subsequent to the preparation of the cavity the cavity-walls be lined with tin-foil, which must be pressed against them tightly, thus perfectly dressing them, then prepare the amalgam as usual and pack it in the cavity. But care must be taken that the tin-foil overlap the margins of the cavity, then after some days the superfluous tin-foil can be trimmed away and the filling with its tin-foil border will take a high polish.

In some classes of cavities, such as are somewhat anterior, you may employ platinized gold, such as is used in porcelain inlay fillings, as a lining for the cavity. One might use platinum alone, but I find that amalgam combines more readily with the former. When using the platinized gold it must be remembered that the overlap should be left undressed for some days. After some lapse of time you will be surprised at the perfect margins and the absolute absence of discoloration in a tooth thus filled.

Items of Interest for October, 1895.

"MECHANICAL DENTISTRY," by Dr. S. W. Foster, Decatur, Ala.; in Alabama Ass'n. The most essential point toward obtaining results in full dentures is to be able to select teeth of the corresponding color and shape. To do this we should be familiar with different temperaments. Of this most dentists know nothing, which results in unnatural appearances. Each of the four temperaments has facial expressions and teeth peculiar to its own type. Why is it we so often see pearl blue, long almond-shaped teeth inserted in the mouths of people whose lips are thick, eyes usually gray, face full, their general physical build bulky and clumsy—typical specimens of lymphatic temperament—while the above described teeth belong to the nervous type? Or, on the other hand, we often find the reverse, teeth that are dark gray, opaque, large and broad, inserted in mouths of persons whose lips are thin, eyes dark brown, hair dark and fine, general physical appearance delicate—true specimens of nervous temperament—while the teeth selected belong to the lymphatic type. It is because the dentist is ignorant as to what class of teeth are allied to the tem-

perament of the patient, or doubtless has no conception in his own mind as to what type of temperament the patient is. Some of our text-books tell us what class of teeth belong to each different temperament, two of which I have just described, as there seems to be here a lack of education. To the sanguine temperament, that most perfect type of humanity, belong teeth that have a straw yellow, translucent shade, and are well proportioned. And in the bilious temperament we have teeth of an opaque brownish yellow, large, broad, a little longer, however, than wide. It is true that we rarely ever find a person who has not a combination of two of the temperaments. If we are familiar with the different types we can so blend the two in making selections that we need make no mistake in finding teeth that will give the proper expression, should we observe the rules that govern setting up and adjusting them as we ought.

"CLASP PLATES," by John G. Harper, D. D. S., St. Louis. The first step in the operation of making a clasp plate is to obtain a model of the tooth to be clasped, which may be taken in modeling compound or wax; an impression may be taken with moldine and a metal model made. The model secured, the next step is to make a pattern for the clasp, using card-board for the purpose. The clasp should be wide, so as to clasp the tooth firmly. If you should wish to hold anything in the hand you would not clasp it simply with the thumb and finger, but with the thumb and all the fingers, and with both hands if the object to be held was large enough. The clasp should embrace the whole crown when permissible. The metal best suited for clasps is composed of a five-dollar gold piece, to which is added a ten-cent silver piece, and rolled to 24 of the gage plate; this clasp metal has the proper spring, and does not lose that property when heated in soldering, and can be soldered with 18k. solder when used on a gold plate. The paper pattern is used to cut out the proper shape of the metal, then the clasp is properly fitted to the model by commencing at one end of the clasp and carefully bending the metal, trying on the tooth, proceeding till the clasp fits the model, filing away the clasp so as to accommodate the festoons of the gums. The clasp is now ready to be tried on the tooth and further adjusted if necessary. If the clasp is for a rubber plate, a stay

should now be soldered on the lingual side of the clasp; these stays may be made of nickel by simply rolling "a nickel" to 28 of the gage plate. A piece of the nickel of the proper width and half an inch long is taken, some holes made in it and fitted to the clasp, by bending slightly to fit the clasp. Instead of placing the stay at right angle to clasp, attach it at about forty-five degrees, bending the nickel to fit the clasp instead of filing it to fit, this gives a firmer attachment.

The clasp is now ready to be smeared on the inside with a sticky wax, made of equal parts of beeswax and rosin, a little of the wax should be also placed on the stay to fill up the space between the stay and the palate or gum. The clasp is now placed on the tooth, any surplus wax removed, and see that the clasp is firmly set in its proper position. Select an impression cup; see that it does not touch the clasp or stay; take the impression in plaster; let it set firmly; remove by gently loosening and carrying it away from the teeth in the direction of the long axis of the teeth; usually the clasps come off in the impression; if not, they should be removed and properly set in the impression; remove the wax from the inside of the clasps, being careful not to disturb the wax on the stay, as this is a part of the impression. Prepare the plaster impression for the pouring of the model, allowing none of the parting material to cover the inside of the clasps. The plaster for the model is poured; allowed to harden; the impression removed, and you have a model of the mouth with the clasps held firmly in position, and are ready to go on and make the plate. Fourteen karat solder may be used for the rubber plate, as the solder is covered up in the vulcanite.

These clasps may be used on gold plates. The best results are obtained by first fitting the gold plate to the mouth, then placing the clasps in position as indicated in the foregoing. The plate may be held in position by the use of a little sticky-wax. The impression is taken with the plate and clasps in position. A model is now made of a mixture of plaster and marble-dust or sand; after removing the impression you have a model of the mouth with the plate and clasps in position; dry out and solder the clasps to the plate, using 18k. solder, only tacking the parts together, using but little solder, so that in case the clasps are not correctly adjusted they may be easily removed; the completion

of the soldering can be done at the time of soldering on the teeth. The plate with the clasps now attached is ready to try in the mouth; if all is correct, proceed to get the bite and attach the teeth in the manner preferred.

Ash & Sons' Quarterly Circular for September, 1895.

"TWO CASES OF TOTAL ANÆSTHESIA DURING INTENDED LOCAL ANÆSTHESIA WITH CHLORIDE OF ETHYL," by HJ. Carlson, D. D. S., of Gothenburg, trans. from *Correspondenz-Blatt für Zahnärzte*. Patient, a young lady, eighteen years of age, presented for extraction of the first molar from the upper jaw. At her request I gave her a local chloride of ethyl injection, and the tooth was removed without difficulty. Immediately after the extraction I observed that the patient was entirely narcotised, but consciousness returned almost at once. To a question I put she explained that she had been narcotised before for tooth extraction, and for another operation, the first time with bromide of ethyl, and the second time with chloroform. But when she commenced to lose consciousness on this occasion she did not feel any asphyxial or respiratory difficulties, and this narcosis was considerably more pleasant than the earlier ones. That the patient experienced no pain—*i. e.*, did not feel the operation—is, of course, understood. After the bleeding had stopped, she remained with me for an hour without a trace of nausea, giddiness, or headache appearing; the next day also she felt completely well. The lady was of a bright temperament, of moderately strong constitution, and quite healthy. On the following day she came again to have a second tooth extracted, and requested that this should be carried out with local anæsthesia. It was done, but without the arrival of general anæsthesia.

The second case occurred with a boy from fourteen to fifteen years of age, under precisely the same circumstances; but it must here be noted that this patient was extremely anæmic.

The general anæsthesia in both these cases was, of course, caused by the patient inhaling the gas through the mouth. I certainly request every patient in whose case I employ this agent to breathe through the nose only, but it is easily comprehended that breathing through the mouth cannot entirely and always be avoided. From these two cases it will be seen that chloride of ethyl is not

absolutely without danger, but the great success achieved with it has induced me to employ it daily in my practice; when doing so I, of course, use every necessary precaution. I believe I minimise the danger as far as possible by means of napkins, which serve to keep the field of operation dry, and at the same time prevent the ingress of the gas. I have been told by colleagues that there are patients who consider the injection of the gas more painful than extraction without an anæsthetic agent; this is, however, probably due to the fact that in such cases the gas has been projected upon a tooth with an exposed pulp, which, of course, must be very painful. In such cases I cover the pulp with wax or cap the whole tooth with this substance. The patients then bear the injection very well. In order to still further prevent unpleasantness during injection, the gum may be painted with a solution of shellac in alcohol, or better still in ether, or recourse may be had to a subgingival weak cocaine injection.

Journal of the British Dental Association for October, 1895.

"NEWLAND-PEDLEY PORCELAIN CROWN," by M. F. Hopson, L. D. S. Eng. The method advocated is as follows:—The root canal having been sterilized and the apex sealed, a crown and pin are selected. Care must be taken to choose a crown which requires the least possible fitting; from the large selection available such a one can nearly always be found, and the trouble taken is amply repaid, both in the time subsequently saved and the original strength of the crown being maintained. It will be apparent that the crown is weakened in proportion to the amount of fitting required. Another point of no less importance is to see that the pin *fits* the hole in the crown which receives it. The face of the root is roughly cut down with a fenestrated root trimmer, and finished off with a carborundum wheel. When the root is free from caries on its lingual aspect, that portion is not cut down below the gum line, but left standing a little above it, a true self-cleansing joint in this position being so obtained. The root canal is next reamed out with tapered reamer to *fit* the pin, which for front teeth has a flattened oval in section. If necessary, the pin is bent to bring it into proper alignment with the hole in the crown. Having placed the pin temporarily in position, the crown is fitted down in a manner similar to that employed when letting

down an ordinary tube tooth. The coloring matter used at the demonstration to facilitate fitting was composed as follows:

Creta. prep	4 dr.
Glycerine.....	3 dr.
Carmine	2 gr.
Ol. geranii.....	3 min.

a preparation which met with the approval of the members who witnessed the demonstration. The pin is fixed first, and then the crown, one mixing of cement being sufficient.

In reply to many questions the demonstrator said that when the crown failed it was the crown which came away from the pin and not the pin from the root, and he attributed the failure to want of attention to the points mentioned above in selecting the crown. To obtain a good result a sound face to the root was a necessity. Where the bite was close he should prefer a Richmond crown, believing it a stronger one under such circumstances. The particular advantages claimed were, the ease and consequent quickness with which it could be adjusted, and the large selection that could be obtained at the depots. In his experience bicuspid teeth went better than front teeth. It was not by any means a universal crown, but it certainly filled a place in crown work.

The International Dental Journal for October, 1895.

"FURTHER EXPERIENCE WITH BALSAMO DEL DESERTO," by Dr. W. H. White, Silver City, N. M. After another year of added experience in the use of this in dental operations, I say that I could hardly do without it. The record is still unbroken: I have never heard of a single case of recurrence of apical irritation after I have filled the roots with this material.

I believe the real secret of success with this material is,—

1. That it is soft and permanently remains soft, and that it will adhere to a damp surface. A root-canal is like a tube, and is liable to change of calibre from thermal or other causes. When filled with a hard substance and such changes occur there must form a crack between the filling and canal-wall, or within the substance of the filling, thus allowing septic invasion; but when such a canal is filled with balsamo, the substance of the filling gives without cracking when there is a change of calibre, and when you add its permanent antiseptic and local antiphlogistic qualities,

and its entire compatibility with tissue of all kinds, there seems wanting nothing to be desired for these purposes. I have discarded the use of the barbed nerve-extractor in cases of recently destroyed pulps. I take out the bulbous portion with engine-burs, and clean the bulbous half of the root-canal with the Brewer drill, purposely leaving the dead nerve undisturbed in the apical half. After three years' experience I have not known a single case to cause trouble; the absolute immunity from all pain, soreness, neuralgia and abscess is certainly remarkable in the light of my former experience in such cases. My usual practice is to fill roots and crowns permanently at the second sitting, or, where I use local anæsthetics, taking out the pulp, I fill permanently, root and crown at first sitting.

I have a record of one hundred and thirty-eight abscesses cured during the past year. With these cases I have used nothing as a germicide except oil of cinnamon, and have filled all roots with the balsamo. In forty-eight of these cases the roots and, when amalgam was used, the crowns also, were permanently filled within thirty hours after treatment began. In seventy-one of these cases the roots were filled on the second or third day after treatment. Many of these latter might have been filled safely within twenty-four hours, but I either did not have time to attend to them or there was no necessity for haste. The only cases found that I did not feel safe in filling within forty-eight hours were those where the canal was so small that I had great difficulty in getting the germicide into the apical space, and those where the apex was necrosed.

I found three cases of abscess during the year that I could not cure,—they all occurred in the same mouth; they had fistulæ with apex necrosed, and a copious flow of thin, milk-white pus. I failed to cure a single abscess in this mouth by any method of treatment, even after amputating the necrosed pulp.

In none of the one hundred and thirty-eight cases treated and cured did I inject any medicament into the apical space, but allowed the cinnamon to reach that space by absorption. I made no attempt to remove the dead pulp from the apical third of the root canal. I dried the canal only so much as could be done with absorbent cotton. I used no escharotic to break up the pus-sac. I found blind abscesses far more amenable to treatment than

fistulous abscesses. It was immaterial to me whether the pus was discharged or not. Of course, where the pus discharged through the canal, I would allow all to escape that way that would, and when the abscess had made an opening through the process, I would lance the gum, but made no further attempt to get rid of the pus. The theory is that it is not the pus cells that hinder the healing process, nor is it the dead bodies of the microbes, but it is the ptomaines, the excretions of the microbes, that cause the trouble. Therefore, if you use a germicide it kills the microbes and stops the excretion of ptomaines; and let that germicide be one that does not poison human cells, but leaves them in healthy condition, so that they may perform their proper function; then the giant-cells, the scavengers of the body, will quickly devour the pus-cells and the dead bodies of the microbes, and the leucocytes, the builders of the body, will quickly repair the breach. Oil of cinnamon is too strong a drug to use full strength in the apical space. Leaving part of the dead nerve in the canal, so far from being a detriment, is an absolute benefit, as it allows only minute quantities of the drug to seep into the apical space. Dentists have been taught so long that it is necessary to evacuate the pus and to break up the pus-sac with escharotics, necessary to clean the canal thoroughly of dead pulp, and to dry the canal, etc., that it is difficult to make them believe that all these processes are not only useless but detrimental. I have used the material long enough to observe that the dead roots of temporary teeth filled with balsamo del deserto seem to be absorbed the same as live roots are. I believe the giant-cells will absorb a dead root as rapidly as a live root if there be no microbic ptomaines present to hinder them from performing their functions.

I have been particularly interested in watching the results of using balsamo with amalgam in filling teeth. In looking at the material one cannot realize its practical benefits. I have gradually grown into its use until I now use it in all amalgam fillings. Balsamo is so attenuant that a very small quantity of it will completely permeate the amalgam and perfectly insulate the several particles of metal, so that such a filling is as poor a conductor of heat, cold, and electricity as cement or gutta-percha. I now use it in all cases of nearly exposed pulp where capping of gutta-percha or of cement was formerly employed.

In recapitulating its good qualities I will say, first, it is more compatible with tooth-structure than any other filling-material yet devised. When a tooth is decayed so that the pericementum is exposed, mix the amalgam with balsamo, and place it lightly against this tissue, and it will remain perfectly comfortable. Any material which can be thus used must be compatible with tooth-structure. 2. I believe it hermetically seals a cavity, which cannot be said of any other filling-material now in use, there being a strata of balsamo next to the tooth that is soft and remains soft. 3. Fillings will require less undercutting than with amalgam alone; in fact, they adhere to the walls of the cavity as firmly as cement. 4. When balsamo is mixed with amalgam it causes the filling to be as poor a conductor of heat, cold, and electricity as a cement filling, and is impermeable to the fluids of the mouth. 5. The tooth-edge does not crumble as it does with amalgam alone. I think this is due to its entire compatibility. 6. The filling does not blacken the tooth as amalgam fillings do, balsamo keeping the filling from oxidizing. While it is thought these salts have a preserving effect, still they are not necessary when balsamo is used. 7. It is especially useful in filling temporary teeth where it is necessary to insert fillings quickly, and often without thorough preparation of the cavity. 8. Patients never complain of uneasiness or pain from thermal changes when sensitive teeth are filled with this material. In short, I believe this filling combines all the good qualities of amalgam, gutta-percha, and cement, and has a number of good qualities that none of these possesses.

When I wish to fill over-exposed pericementum, or where the pulp is nearly exposed, I mix balsamo with part of the amalgam and press it down lightly with spunk folded tightly in the pliers, finishing the filling with pure amalgam. For ordinary cavities I cover the cavity first with balsamo and work the amalgam into this; this forms a pasty mass; when the cavity is half-full I wipe off the surplus balsamo with spunk, firmly rubbing it against the walls of the cavity, then complete the filling with purer amalgam. When balsamo is mixed with amalgam it at first forms an unsightly mass, resembling blue mass in appearance, and shows dark through thin enamel, but after it has been in a tooth a few weeks or months it loses this dark color and the fillings look far better

than if amalgam alone were used. Spunk moistened with alcohol used on the amalgam makes a clean, hard surface to these fillings. The reason I think balsamo preferable to the various alcoholic or chloroform solutions of the gums now in use for lining cavities is that these solutions become hard on exposure to air and moisture. When lining a cavity, if the calibre of the cavity changes, these linings crack and thus allow the invasion of septic matter; balsamo will permanently retain its present consistency and cannot crack,—it is also more compatible with the tooth than these gum solutions. Among other things for which I find balsamo useful is, first, to relieve pain in the alveola after tooth-extraction, especially where no firm blood clot is formed. A plug of cotton saturated with balsamo put into the socket will keep it free from pain until thrown off by granulation.

2. When an exposed pulp is painful and congested, the pain is relieved and the circulation is restored to its normal condition by an application of balsamo. The relief from pain is caused by antiphlogistic properties and not by anæsthetic properties. I have thus often relieved the pain caused by arsenical application.

Until lately I thought balsamo a vegetable product, but I have discovered it to be an animal product; an insect uses this material to rear its young in the same way as bees use beeswax.

The Dental Review for October, 1895.

"A METHOD OF ANCHORING LARGE CONTOUR FILLINGS IN INCISORS," by C. N. Johnson, L. D. S., D. D. S., Chicago; read before the First District Dental Society of Illinois, Sept. 11, 1895. The only reason for presuming to offer a paper on what might appear so small a subject is the fact that observation has seemed to show a serious lack on the part of many operators to recognize and apply the best principles in the anchorage of contour fillings in incisors. By contour fillings we mean cases where the proximate surface is so involved that the occlusal corner is gone, requiring a reproduction in filling material. Given a case where the pulp is dead and the anchorage is usually easily obtained, but where the corner is gone without much penetration of the decay toward the pulp, the result is a shallow cavity which seems to tax the average operator in his attempt to gain sufficient anchorage. From observation it would seem that the majority of operators prepare the

cavity in the following manner: After the usual conformation is given the cervical portion of the cavity, anchorage for the occlusal half of the filling is obtained by drilling obliquely into the cavity toward the occlusal surface between the two plates of enamel as they come together. Anchorage of this form frequently develops a weakness which results in a loosening of the filling as follows: The gold which is built into the occlusal undercut becomes slightly battered or compressed as the result of force exerted on the end of the filling, and the whole filling is thus allowed to tip away from the cavity, leaving a seam or space between the filling and tooth. In some cases a filling will remain partially dislodged in this manner for a considerable time without perceptible loosening, while in others the filling is forced bodily out of the cavity shortly after its insertion. It will readily be seen that any compression of the gold in the act of biting upon it will lift it away from its close adaptation to the occlusal undercut and result in a leakage of the filling—if not in a total dislodgment. So many cases of failure from this cause have been noted, and so many inquiries as to a surer method of anchoring these fillings firmly in place have recently been made of the essayist that he has been induced to prepare a short paper embodying his views on the subject.

Possibly a clearer idea of the method to be described may be gained by taking a typical cavity and outlining its preparation than by speaking in a general way of the process. Let us suppose we have a large mesial cavity on the left upper central incisor. There is little penetration of the decay toward the pulp, but the entire mesio-occlusal angle of the tooth is gone. This form of cavity apparently presents greater difficulties to the average operator than where the decay has penetrated deeper. In the present method of preparation the cervical half of the cavity is shaped in the usual way, being liberally extended cervico-labially and cervico-lingually. To obtain anchorage at the occlusal portion of the filling, instead of drilling into the axial wall in the ordinary manner, a groove is cut along the occlusal surface leading from the cavity distally to near the disto-occlusal angle. This groove must be made sufficiently wide and deep to admit of a large enough mass of gold being packed into it to insure strength, and in order to accomplish this in teeth with thin occlusal sur-

faces it is often necessary to cut away the lingual plate of enamel somewhat freely. This may be done with safety provided the enamel margins are properly beveled and gold built over them in the insertion of the filling. The distal end of the groove may be deepened somewhat to assist in retention. The philosophy of this form of anchorage consists in two things: First, it will prevent absolutely the tipping of the filling previously alluded to; and second, it increases materially the seating capacity of the filling. Since the appearance of Dr. Black's articles on the compressibility of filling materials and kindred studies, the seating area of our cavities becomes a matter of much importance, and it seems quite conclusively proved that, other things being equal, the larger the area upon which the filling rests to sustain it in the force of mastication the greater security it has against dislodgment. With the form of anchorage just outlined it becomes impossible for a filling to get out of a cavity short of a breakage, and if the mass of gold is made thick enough it will not break. It is readily seen that the greater the force brought to bear upon the filling in the closure of the teeth, the firmer it is driven into the cavity, and if there should be any compressibility of the filling material the tendency would be toward a closer adaptation to the cavity walls instead of a lifting away, as in the ordinary method of anchorage.

At first glance there might appear to be several objections to this method. Some operators may feel a hesitancy about drilling into sound tissue in this way for anchorage, but it must be remembered that in the preparation of any cavity sound tissue is often sacrificed for this purpose. In this instance I am convinced that it is sacrificed to good account, and I feel sure that when the operation has once been done in this manner the operator will to a large degree find his hesitancy gone. There is a feeling of security when the gold has been built well over and anchored into the occlusal surface that does not obtain in any other kind of cavity formation for this class of fillings. Another objection might seem to rise in the apparently unprotected labial plate of enamel. The labial plate is always left standing for appearance even when the lingual plate must be cut away for strength, and if not properly protected might prove an element of weakness. But by carefully beveling the enamel margin and building gold over the bevel, it is

so perfectly protected that in all my experience with this method I cannot recall a single instance where this wall has failed. The acute corner at the mesio-occlusal angle should be rounded slightly, and the same corner on the lingual plate should be cut freely away so that the outline of the filling is a gentle curve from the proximate to the occlusal surface.

This form of filling provides an adequate protection for the end of the tooth, and does away with what is ordinarily a vulnerable point in most fillings of this class when constructed in the usual way, viz., the junction between gold and enamel at the occlusal surface. The slightest chipping away of the enamel at this point is often disastrous, and results in final destruction of the filling. Again, there is opportunity for deeper and firmer anchorage, without danger of approaching the pulp, than where an undercut is drilled into the axial wall. The cavity is rendered free of access for the insertion of the filling, and while more gold is used, it is more readily inserted and is hidden from anterior view by the labial plate of enamel. A filling of this form therefore looks no more conspicuous in front than where the occlusal surface is left intact. There are, of course, many cases of contour filling in incisors where this method is not applicable, such for instance as a pulpless tooth where the decay is deep, or where the dentine is badly involved and the lingual wall gone for some distance toward the neck. These are the cases, however, where anchorage in other ways is easily obtained.

"COMMERCIAL ELECTRICITY AND THE APPLICATION IN DENTAL PRACTICE," by L. E. Custer, B. S., D. D. S., Dayton, O.; read before the same society. The ever-increasing field for the application of the various forms of electricity in dental practice makes it necessary that the dentist should become familiar with the common electrical terms and the different commercial currents in general use.

There are three terms which are the foundation for electrical calculations, the volt, ampere and Watt. The *volt* is the term for pressure, and we speak of it just the same as we do of water in a pipe at so many pounds pressure. The *ampere* is the term for quantity, and to use the same illustration, the ampere represents the carrying capacity of the pipes or cross section of the stream

of water flowing. The *Watt* is the product of the volts multiplied by the amperes; that is, the quantity of water which flows through the pipe is equal to the size of the opening multiplied by the water pressure. In other words, the Watt is the unit of electric power, and 746 Watts are equal to one horse power. It does not matter how the Watts are made up, whether more of volts or of amperes so long as the product of the pressure (volts) multiplied by the quantity (amperes) is equal to 746, it is one horse power. A current of 75 amperes flowing under a pressure of 10 volts will do work equal to about one horse power, or a current of one ampere at 746 volts will produce one horse power. A 16 c. p. lamp consumes 55 Watts, at 110 volts that would be half an ampere each, and 13 such burning at one time represents an expenditure of one horse power. Or a current of 10 amperes at 110 volts is equal to 1,100 Watts, or one and one-half horse power.

There are five different currents in common use. The arc light current, the 500 volt or car current, the 220 volt or power current, the 110 volt constant or Edison current, and the 52 volt alternating or Westinghouse current. The arc current is familiar to all, and it affords an interesting example in electric arithmetic. It requires a pressure of 45 volts to leap across the distance between the two carbons of the lamp to give the light we see, but to give a steady light there should be 10 amperes of current. These 10 amperes of current are started out from the power house, and for every arc lamp through which they pass there is required an addition of 45 volts. That is, a pressure of 45 volts is required to jump the arc and maintain it in the first lamp. This lamp must be kept burning, and when the second lamp is reached the dynamo quickly makes an additional 45 volts, and so on all the way around the circuit back to the power house. So that, if there are 50 arc lamps in the circuit there would be required 50 times 45 or 2250 volts to send a current of 10 amperes through the 50 lamps. The high voltage of the arc current is the cause of the danger. It is volts that kill. The 500 volt current is used mostly for street cars and heavy power work. The high voltage is used here for the same reason that it is more economical to carry water in small pipes at high pressure than in large pipes at low pressure, as well as the fact that the motors are better proportioned for their work when operated by this current. It will

be noticed that these cars are always lighted by five 110 volt lamps in series; that is, it requires 110 volts to properly burn one lamp, but with 500 volts pressure the current can go through one and then another till it has passed through five lamps, and each one will burn but little below its intended capacity. If four lamps were used they would soon burn out, because there would be 125 volts to a lamp instead of 110. The 220 volt current is mostly used for power purposes, because it can be carried on a rather small wire and is not especially dangerous to life. This current is not, however, very common. The Edison or 110 volt current is, as you well know, almost universally used for incandescent lighting and light power. This current does not differ from any of the preceding except as to voltage. It is sometimes called the constant current because the current is continually flowing in one direction. The pressure is set at 110 volts because it is found to be economically distributed at this voltage to that point where the voltage drops below 100. For this reason it is always used in small plants, or in large plants whose wires do not run far from the power house, in thickly settled centers, and in hotels and public buildings. The fifty-two volts of alternating current is used for incandescent lighting and light power also. This differs from the preceding in many ways. Instead of its flowing in one direction it flows alternately in one direction and then in the other. This current is distributed in an entirely different manner from the others. A current of very high voltage is conducted to what is known as the transformer, passing through which it induces an extra current in an entirely independent coil of wires and this new or induced current is the one carried into the house for use. So that the primary current of very high voltage is carried on a comparatively small wire for miles about the city at quite a small expense, and gives the consumer a light which would be impracticable with a constant current at that distance from the power station. This current is used mostly in small towns and in scattered suburbs.

Of the above mentioned currents the Edison or 110 volts constant potential current is the ideal one for dental purposes, and fortunately it is the most common of all. It is so easily made that nearly every office building operates its own plant. Or the dentist with a gasoline engine and dynamo can be independent at

a very small cost. The current is safe to life and its wiring is quite simple. It may be used for power, for light, for cataphoresis, for electrolysis and for heat equally as well. In fact, it seems as though this current was intended for dental purposes alone.

LEPROSY IN ICELAND.—Leprosy is increasing in Iceland in an alarming manner, according to the Jesuit missionary, Father Sveinsson. Last year a Danish physician, sent by the government, examined one-third of the island and found one hundred and forty-one lepers.

DANGERS OF COCAINE.—Dr. A. R. Baker, of Cleveland, Ohio, in a paper published in the American Journal of Ophthalmology, recapitulates the dangers of cocaine in a collection of ten fatal cases of poisoning by the drug. The smallest fatal dose where a measured quantity was given was two-thirds of a grain, which was injected into an eye, with the result that immediate unconsciousness was produced, followed by death in four hours. One grain injected into the gums by a dentist produced death in a few minutes. The application of a ten per cent. solution to the larynx with a brush was also fatal, unconsciousness following almost at once and death in three hours. The author also reports a case where the instillation of a six per cent. solution was followed by alarming depression, with periods of unconsciousness attended with delirium.—*D. & S. Microcosm.*

SMOKER'S VERTIGO.—At a recent meeting of the *Congres des societes savantes*, a report of which appeared in the *Progress Medical* for May 4, M. Kohos said that vertigo caused by nicotine was very frequently observed, and that it manifested itself sometimes under the form of a slight acute poisoning, accompanied with pallor, salivation, cold sweats, headache, vertigo, staggering, etc., which symptoms were produced in those who smoked for the first time; sometimes the poisoning was more serious, as, for instance, in the case of a man who had smoked twenty-five pipes on a wager, who suffered for many months with vertigo. The vertigo of chronic intoxication from tobacco, he said, might be observed in the workmen and work-women in tobacco factories, as well as in smokers, in snuff-takers, and in those who chewed tobacco. The action of nicotine varied according to the amount absorbed, and the disturbances caused in the life of the cells in consequence of their contact with the poison might also be variable.

M. Le Roy de Mericourt remarked that he had never observed smoker's vertigo in Brittany or in certain other countries in which he had lived for a long time, but he had observed a tendency to syncope dependent upon disturbances of the circulation following intoxication with the ordinary tobacco.—*New York Med. Journal.*

Letters.

WHO WOULD NOT TRY TO BENEFIT HIS PROFESSION?

HANCOCK, Mich., Nov. 4, 1895.

Dr. J. N. Crouse, Chicago,

DEAR SIR:—Your postal circular duly received, and for reply please accept a few questions from me.

Why has the sec'y. of the D. P. A. failed to fulfill some of his promises made so many times? *What* has the D. P. A. done or accomplished to retain the confidence and support of its members? *Where* are those certificates of membership that were to adorn our office walls to strike terror to the hearts of all patent agents when they came to bleed us? *Who* catches the most suckers, the D. P. A. or the patent men? *Why* do members of the D. P. A. never receive any reports of the doings of the Association without being compelled to pay for it by subscribing to the "DENTAL DIGEST?"

The above questions I believe voice the sentiments of the dental fraternity in this section of country who happen to have a part of their hard earned savings invested in the D. P. A.

Very truly yours,

W. A. COURTNEY.

Dr. W. A. Courtney, Hancock, Mich.,

DEAR DOCTOR:—Your letter received, and I will endeavor to answer your questions. Your first is too indefinite to be answered. When you make accusations, either false or true, you should specify exactly to what you refer.

As to your second. The D. P. A. has stopped the annoyance from all patent claimants throughout this country. It has defended suits and driven these vampires from the many courts where they have brought suits. It has freed many of its members from notes given by them before the Ass'n. was organized in payment for royalties. These notes involved thousands of dollars—\$14,000 in one state alone. So that the members have been entirely free from both money claims and from annoyance. It is now defending several suits, and if it were disbanded the patent claimants would soon come to life again. All this litigation

has been conducted with absolutely no trouble to the members, so that some men like you, who do not take much interest in their profession, imagine nothing has been accomplished.

In regard to your third. It is true that certificates were promised, but at the time it was not supposed that the canvassing by patentees would be so thoroughly stopped. I venture the proposition that you have not had a claimant for royalty in your office since you joined the Ass'n., so you did not need a certificate to prevent this annoyance. Especially as the issuing of them involved a large and unnecessary expense, and at one of its annual meetings the Ass'n. passed a resolution instructing me not to incur this expense.

Question four is too trifling and undignified to require much of an answer. Especially as it comes from a member, that is, one who has already been saved one hundred times the amount of his original investment.

Question five. If I were making a living by the work I do for the Ass'n., and could give all my time to it, I could scarcely do what you seem to think I should now do gratuitously, viz.—answer the thousands of letters from members who desire information. But as I have to practice dentistry for a living, and so can not give all my time to outside work, it is absolutely necessary for the Ass'n. to have an organ, and I have at my own risk, established the DIGEST as such, feeling sure that when the members appreciate its object, and see how much stronger we are with it than without it, they will all take the journal. Especially when they consider that it gives them more for their money than any other journal, besides saving the Ass'n. much expense in the sending out of circulars, notices, etc. In addition to all this the members should not forget that all this work has been done without any money compensation whatever, compelling me to give up all vacations, being a constant care, such as very few members have any idea of, and \$20,000 would not pay me for the time spent. In view of all this, is it asking very much of the members to subscribe to the official organ of the Ass'n.?

I should imagine that your section of country is very small, since your state society, as well as all the prominent dental associations in this country passed resolutions commending the work and promising additional support. The members of the Protec-

tive Ass'n., excepting a few like yourself, appreciate the work done and yet to be accomplished. Yours truly, J. N. CROUSE.

STATE BOARD DENTAL EXAMINERS.

OFFICE OF THE SECRETARY. CHEROKEE, Iowa, Oct. 28, 1895.
J. N. Crouse, D. D. S., Chicago, Ill.,

MY DEAR DOCTOR:—Have received several cards regarding the "DIGEST," asking questions, and telling of the labor necessary to publish same. To be sure I am a member of this association and have always paid whatever or whenever asked, paid my membership fee same as others did, and can see no reason why I should subscribe for the DIGEST unless so disposed; and don't know what this journal is doing any more than others, and it is not because I did not read the copies sent me, for I read them very closely. Your "Supply Company" was going to do great things in the way of putting down prices. What have you done? Not a thing in this direction; we can buy just as cheap of anyone else as of the Supply Co., and get just as good for our money.

This is surely a matter of business, and your method of advertising among dentists may meet the approval of a majority of the profession, but this manner of advertising never struck me very forcibly, any more than for insurance or building and loan companies to use the name "Masonic" to do business with the public.

Should I need anything from your "Supply Company," or wish to take the "DIGEST," will make it known without your sending your "Monthly" card.

How about the "Certificates" of membership which you have been going to issue for the last five years to the membership of the "Association?"

Yours truly,

F. P. WEBBER.

Dr. F. P. Webber, Cherokee, Iowa,

DEAR DOCTOR:—Your letter received and I will reply briefly to your propositions. Your remarks about the DIGEST and the membership certificates are answered in reply to the letter preceeding yours.

As a member of the Protective Ass'n. you have paid whatever you have been asked, which was the membership fee of \$10, paid

about six years ago, and no annual dues since. You saw a reason then why you should join, and I presume I state the facts when I say that you did it because you were afraid of getting into patent litigation or else be compelled to take out a license and pay royalty. You will probably admit that you made a good investment, as you have been saved \$100 a year since you joined. You might have done as others have done and are doing, viz.—let someone else pay for your protection, but if a sufficient number had not banded together, the expense of litigation would have been thrown on each dentist individually and would have eventually compelled them all to take licenses. While you deserve credit for becoming a member, in your refusal to help on with the work you give proof that you joined from no desire to benefit your profession, but simply to better your own condition.

As to your statements concerning the Supply Co., before the depot is opened I have demonstrated the strength of the movement by bringing about a reduction of three cents on the price of each tooth; a cut in the price of engines; a reduction in the price of gold; and the best bur made can now be procured for almost a fourth less a gross than any other good bur. The movement would have progressed much more rapidly if the members of the Protective Ass'n. had co-operated in a scheme which was formulated solely for their benefit.* Because of this lack of general co-operation, I, with the help of some who had confidence in the plan and in me, assumed the responsibility, and for some time have been offering a reduction on goods to all members, not because I felt I was under any obligation to do so, but to induce others to join, thereby increasing our strength and bond of union.

It would be beneath my dignity to answer your accusations and disapproval of my "manner of advertising," were it not for the fact that the enemies of this reform movement, who have been trying to hinder it in every way they could for the last two years, have been throwing out false and dishonest accusations. You may have gotten your information from this source, but such an accusation without evidence would indicate a mind corrupted by conduct and thought, more especially as you use the official paper of the Board of which you are a member for your private correspondence, I presume to carry weight and overawe me.

Yours truly,

J. N. CROUSE.

NEW YORK LETTER.

NEW YORK, Nov. 8, 1895.

To the Editor of the Digest,

MR. EDITOR:—How men do hear with their elbows—"Give us not only listening ears, but understanding also." This is so apparent in our discussions. Note the talk that followed the paper of Dr. Brown on perforating deciduous teeth, pulpless or otherwise. Dr. Brown is sound; practice will give good results so far as it concerns pulpless deciduous teeth, and we are quite as sure regarding pulpitis. Note one point—perforating the tooth by approaching it by a crosswise pressure at least prevents the largest percentage of vibration. Can a novice fail to see the wisdom of such practice? The idea impresses itself on one's mind. We have often made this operation and secured immediate relief, both in pulpitis and incipient abscesses. There is hardly anything which so taxes our nerves as these acute cases of pulpitis, and many times we are compelled to operate without the aid of an anæsthetic, save a local one, because of fear or prejudice. We are most heartily in accord with Dr. Brown's introduction of a very conservative method of dealing with teeth under circumstances that will often favor the treatment. How the character of the discussion that followed his paper emphasizes the importance of "face to face" dealings in teaching in our schools by one who can deal with a prod-stick thirty-six inches long.

The proceedings of the New York State Association for '95, aside from the reports of Dr. Ottolengui and Rhein, give but little that enlists the progressive man's interest. But all professional men are interested in that part of the report which refers to advertising, a much-hackneyed subject. It is suggestive, to say the least, (if not hypnotic). It so fully brings out the peculiarities of men's clandestine methods. The report could have gone further and brought out various methods of giving notice through the daily press, both in print and pictures. Well, it will continue for some time in spite of the debate. We noticed a disposition on the part of an advertiser to fire at the report; it was funny, how a hit bird flutters. Dr. Rhein's report we regard as very one-sided so far as it emphasizes the extreme gold work in the restoration of contour. It is only excellence that is emphasized by such examples as Atkinson, Varney and Webb. Too much

has been accomplished during the past ten years in the line of conservative practice to let it go by unnoticed. The truly professional practitioner is the one who seeks his patients' best interests with the least expenditure of time, energy and money. All kinds of teeth in all conditions of bodies must and can be best conserved by the various methods in vogue, all of which are invaluable in their place, judgment always being the dictator.

Only a slight tremor was caused by an emphasized announcement of the death of a lady in a New York dentist's chair from nitrous-oxide gas. An autopsy revealed no signs of organic weakness, but there is to follow an "inquest." We wish the public could have a snap-photograph of one of these shameful farces that so often occur in this great city. We witnessed one in '69, that was enough. Yet this anæsthetic has its place.

Among the irregularities of mankind we have omitted one thing which seemed to be italicized in Dr. Rhein's report, viz.—that "Stomatologists" are the men that the public can look to for the ability to meet the demands of the various diseases of the mouth and teeth. Does he mean the present enrolled membership, or is it to be understood that this is to be the ultimate outcome of Stomatology? Alas! there are many great problems before us. In the meantime we are confronted by the fact that there is no safety in leaning upon our own understanding.

Dr. Petersen, who holds various positions in the hospitals of New York, gave a learned paper on "Deformities of the Hard Palate in Degenerates" before the opening meeting of the Odontological Society. It was well attended. Prof. Peirce, always welcome in New York meetings, took part in the discussion, ably of course. Several prominent physicians were in attendance and forced the discussions by their culture and decided familiarity with broad subjects. Some of them were the governors of the Academy of Medicine, and fine-looking men they were. A broad and liberal education does tell and it does embellish a dental meeting. We are aware that there is a decided feeling that our teaching in societies should come more definitely from dentists than from medical men, and there is much to be said in favor of it, but after all, we do receive help by a large and liberal mixing. These medical gentlemen paid a deserved compliment, we think, to the character of the society gatherings of dentists in the

Academy, believing them to be an auxiliary to the larger teaching of medicine. The more we hold this view, the more we will fraternize in all that adds to the amelioration of human suffering.

Dr. Ottolengui, Dr. Kingsley's associate, gave an additional interest to this meeting by the exhibition of a large number of skilfully prepared models of cleft palates and the fixtures adapted to the deformities. They were studied with great interest by all as they were passed around. Skill tells its own story whenever it is on exhibition. It is always an object lesson which stirs the ambition to higher attainments.

Dr. St. George Elliot, of Japan, London, Washington, D. C., and now of New York, is gladly welcomed by all who have his acquaintance. He has always been a liberal contributor of matters of interest in our society gatherings. He tells us that he educated the first Japanese dentist in Japan, and that he was offered a position as teacher of dentistry by the Government, but his practice was more valuable to him.

There are chunks of wisdom in the leaders of the *DIGEST*, but few have a stomach that can or will assimilate them; too many are on the short cut.

Great expectations from Atlanta. We are not so sure that there will be a large delegation from these parts, yet the trip would be full of enjoyable profit. They know how to deal out something that most of us enjoy—true, genial hospitality.

We are just in possession of information concerning something that is to stir the scientific dental world decidedly. One of our journals will soon publish a paper that will set many ears itching that have perhaps ceased to listen; thinking that all the evidence has been handed in. The fact that this stir is to emanate from an unexpected quarter is all the more assurance that it will make the coming months in society matters brisk at least. We are a little chary of emphasizing our knowledge of coming events too emphatically, lest so much energy will be expended in curiosity that the mental powers will not be strong enough for the chip which must be displaced. This piece of news is not hearsay, but facts from the direct source. We take great pleasure in giving this intimation of a scientific challenge to the *DIGEST*, for although it is the last venture in journalism, it does not appear the least.

Cordially,

M. A. G.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

WHAT WE WANT.

The time has come when the membership of the Protective Association must be increased if the organization is to be permanent, and this can easily be done if the members will give their help and co-operation. We have prepared lists of all the members in each state, which will be sent to every member within a few days, so that each one can see who has already joined in his state. We trust we shall have the help of the members in doing what should have been accomplished long ago, viz.—the getting of every practitioner of any account into the organization. The details of this plan will be given in a circular letter with the lists. To be brief, we want the membership of the Association greatly increased, the subscription list of the DIGEST doubled, and the remaining stock (one-fourth) of the Supply Co. taken *by dentists*, and all before Jan. 1st, 1896. What has already been done simply demonstrates what can be done if all the members of the profession will pull together. Who will respond?

WHO WOULD NOT TRY TO BENEFIT HIS PROFESSION?

Under this caption we publish two letters of adverse criticism, and would not spend any time in answering them were it not to show the need of improving the standing of the profession in more ways than one.

The letters are from dentists who joined the Protective Association, and we think it safe to say, judging from the tone of their remarks, that they joined entirely from selfish motives, fearing lest some one of the patent claimants would make them pay a license fee. For if they had public spirit enough to spend ten dollars for the good of their profession they would not make such insinuations and ask such questions.

These persons have received absolute protection for the last seven years, in which time, but for the Association, they would each have paid out at least \$1,000 in license fees, that is, if they come under the head of active practitioners. We make this estimate unreservedly, as we know of cases where licensees of the Crown Co. in a single office, who continued to pay royalty, have paid \$6,000, and no one can tell how many other patentees would have been claiming revenue from the dentists if the profession had not banded together.

Had the money been lost in an attempt at protection which failed to protect, we can see how many would have been dissatisfied and made complaints, but, in view of the fact that the Association has accomplished everything that could possibly have been asked of it as regards immunity from patent claimants of every description, such letters are unwarranted. Or if such criticisms came from the enemies of the profession, that is, those who have been robbing and annoying the dentists in every possible manner, and who saw in these reform movements elements which must eventually compel them to give us fair treatment, we could readily understand and show the motives; but how those who have received all the benefits afforded by the organization can show such an utter lack of appreciation, is beyond our comprehension.

We publish the letters and our replies with a hope of giving the members of the Association better information as to its real work, thinking that perhaps these complaints may have arisen from lack of information. We ask our readers to peruse carefully the replies and questions asked, and then to tell us whether it is not true that at least part of the profession require something more than protection to make them fit subjects for the next world, or even to be classed among men of a liberal and honorable profession in this one.

Notices.

INTER-STATE DENTAL MEETING.

A meeting of the General Executive Committee of the Inter-State Dental Meeting was held in Kansas City, at which each of the four states (Iowa, Nebraska, Kansas, and Missouri) was represented, and the following action taken. The place and time of meeting were fixed at Excelsior Springs, Mo., June 23-26, 1895. Dr. Henry J. McKellops was chosen Supervisor of Clinics, to be assisted by Dr. L. K. Fullerton, Iowa; Dr. D. M. Huestis, Neb.; Dr. C. B. Reed, Kan.; and Dr. H. S. Lowery, Mo.

Much enthusiasm was reported from all the states, and it is believed that this will be one of the greatest dental meetings ever held in the West.

S. C. A. RUBEY, Sec.

J. P. ROOT, Chairman.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The thirteenth annual session of the National Association of Dental Examiners was held at Asbury Park, N. J., commencing Monday, August 5, 1895; the president, Dr. L. Ashley Faught, of Philadelphia, in the chair.

The following state boards were represented at the sessions:

Alabama, T. P. Whitby; Delaware, C. R. Jefferis, D. M. Hitch; Georgia, J. H. Coyle; Iowa, J. T. Abbott; Kentucky, H. B. Tileston; Kansas, J. O. Houx; Colorado, R. B. Weiser; New Jersey, F. C. Barlow, Chas. A. Meeker, Geo. E. Adams, E. M. Beesley; Pennsylvania, Louis Jack, W. E. Magill, L. Ashley Faught, Jesse C. Green; Tennessee, F. A. Shotwell; Virginia, J. Hall Moore; District of Columbia, H. B. Noble, Williams Donnally.

The following boards were elected to membership:

Connecticut, Geo. L. Parmele; New York, Wm. Carr; New Hampshire, Edward B. Davis.

A resolution, offered by Dr. Barlow, requiring credentials to the association to bear the official seal of the state board making the application, was adopted.

A resolution offered by Dr. Donnally last year, and laid over, permitting persons who have been delegates to the association to be associate members without the right to vote or hold office, was taken up and adopted.

Dr. Jack offered the following, which was adopted:

Resolved, That this body would express to the Association of Faculties the importance of an examination of the equipment, methods, and facilities of instruction of the dental colleges of this country; it being understood that such examination is to be purely in the interest of higher educational standards and towards an approach to ultimate uniformity in the curriculum and methods of the schools, and more particularly to enable safe action to be made with respect to new schools.

Later a communication was received from the secretary of the National Association of Dental Faculties to the effect that the association had ordered the

secretary to secure information from the various colleges regarding their equipment and general facilities for teaching; that this information would be systematized so as to be available at the next annual meeting of this body.

The following "plan of requirements for the recognition of dental schools," offered by Dr. Jack, was adopted, with a proviso that it shall apply only to colleges making application after the close of this session:

That each dental school which may in future come before this board for recognition, must have a teaching faculty composed as follows, to wit: at least three professors of dental subjects, namely, for operative dentistry, for dental prosthetics, for dental pathology and therapeutics. For the medical subjects there must be at least five professors, namely, for anatomy, for physiology, for chemistry, for pathology, and for materia medica.

Its students must also be taught the subjects of chemistry and bacteriology in laboratories adapted to the purpose and under suitable instructors.

That such special school must possess, in addition to suitable lecture-rooms, a well-appointed dental infirmary and a general prosthetic laboratory; also each school must be provided with a room or rooms suitable for manual training in operative dentistry, and must furnish in this way systematic instruction to its students.

All of these provisions are to be determined by careful inspection on the part of the Board of Examiners of the state within which is located the school, or other authorized body duly indorsed by this association. And upon the result of this examination may depend the question of reputability.

The following colleges were added to the list of recognized schools: Dental Department of the University of Denver, Denver, Col.; Department of Dentistry of Detroit College of Medicine, Detroit, Mich.; Dental Department of Western Reserve University, Cleveland, Ohio.

Applications from the following were laid over one year: University of Buffalo, Dental Department; Atlanta Dental College; University College of Medicine, Dental Department, Richmond, Va.; Birmingham Dental College; Cincinnati College of Dental Surgery.

The Committee on Colleges in its report, which was presented by its chairman, Dr. Jack, expressed the view that more should be required to establish the right of dental schools to recognition by this body than good organization and the fulfillment of the rules of the Association of Faculties. Evidence should be furnished that the teachers are of high standing; that they require of their matriculates the stipulated preliminary training, and that they are carefully qualifying their students in every necessary direction. To ascertain these facts is a matter of difficulty. It is necessary, too, in addition to an ascertainment of the character of the faculties of any school, to discover the degree of confidence which has been developed in the minds of the local members of the profession.

The number of students in actual attendance in all the schools of the country for the session of 1894-95, excluding those attending special courses, was 4,979, as against 3,997 at the previous session; graduates, 1,208, as against 911.

The committee also expressed the conviction that it is becoming evident that the dental schools are increasing in number beyond the needs of

the public, owing to the tendency of medical schools to inaugurate dental departments. The installation of dental departments in connection with medical schools is necessarily often incomplete, and therefore the committee believes that restrictions should be placed upon the rapid increase of inefficient dental colleges. As the practice of dentistry is largely based upon knowledge of chemistry and bacteriology, and as manual training has become an integral part of the curriculum of some of the better schools, we recommend that the association do not in future recognize any school unless satisfactory evidence is furnished that the students of such schools applying for recognition are being taught in modern chemical and bacteriological laboratories, and are also furnished with every convenience for manual training in prosthetic and operative dentistry, and that this latter mode of practical instruction is systematically carried on in at least the first year's course.

The committee also called attention to the importance of a higher standard of preliminary education, and to the impropriety of schools advertising as instructors practitioners who occasionally clinic before the students, but are not a part of the staff of the institution.

The report was adopted.

The following resolution, offered by Dr. Magill, was unanimously adopted:

Resolved, That we will not in future consider favorably an application for recognition from any college which has as a member of its faculty one who also holds membership in the State Examining Board.

Dr. Donnally moved that final action shall not be taken on the application of any college until such application has been in the hands of the chairman of the Committee on Colleges for at least ten months. So ordered.

The following were elected officers for the ensuing year: J. T. Abbott Manchester, Iowa, president; H. B. Noble, Washington, D. C., vice-president; Charles A. Meeker, Newark, N. J., secretary and treasurer.

Adjourned.

BLACK EYE.—To prevent black eye (*Maryland Medical Journal*), paint over the injured surface two or three times with a mixture of tincture of capsicum annuum and an equal bulk of mucilage and a few drops of glycerine. The coats should be repeated as soon as dry.

Obituary.

Noyes—Mrs. Fanny H. Wells Noyes, wife of Dr. Edmund Noyes, 1211 Judson Ave., Evanston, Ill., Oct. 20, 1895.

DR. W. H. SEDGWICK.

W. H. Sedgwick, D. D. S., died at his home in Granville, O., Oct. 24, 1895, from disease of the kidneys, from which he had suffered for several years.

He was born in Rockhill, O., Aug. 6, 1833, and at the age of fourteen moved to Zanesville where, one year later, he entered the dental office of his father. From this time he practiced his profession continually until his death. Early in life he united with the First Baptist Church of Zanesville, which was founded by his grandfather, the Rev. George C. Sedgwick. Of this church he was an active member until his removal from Zanesville in 1855. In Granville, his adopted home, he was married to Sarah E. Granger, Sept. 27, 1855. In 1869 he was graduated from the Dental College of Cincinnati, of which he was one of the founders, being a trustee at the time of his demise. So scholarly and skillful was he in theoretical and operative dentistry that he held the position of censor on the examining board of the Dental Department of the Ohio Medical College, and was president of the Ohio Dental Association in 1891-2. His contributions to dental journals were numerous, and through this medium his name was well known. He was one of six appointed by the Dental Association of Ohio to represent it at the International Medical Congress held in Washington, D. C., in 1887.

Deceased stood high in Masonic circles, being an active and honored Past Master and District Lecturer of the Grand Lodge of Ohio. He was also a member of the Knights of Pythias and Order of Eastern Star. These three lodges are now draped in mourning, memorial of a true, staunch, and useful brother.

A wife, two daughters, one son, two sisters and a brother survive him. To these his death is a grievous loss, especially since the family relations were so tender and affectionate. For their suffering the entire community feels a deep sympathy and joins them in regret over the death of a kind father and husband, a worthy citizen, a faithful friend, and a resident loyal to the best interests of his section.

DR. JAMES E. GARRETSON.

James Edmund Garretson, A. M., M. D., D. D. S., Dean of the Philadelphia College of Dental Surgery, died of enteritis, at his home in Lansdowne, Pa., Oct. 27, 1895.

Dr. Garretson was born in Wilmington, Del., Oct. 18, 1828, and commenced the study of dentistry with Dr. Thacher, of Wilmington, in 1850. He began practice near Woodbury, N. J., and later came to Philadelphia, where he entered as a student in the Philadelphia College of Dental Surgery, the progenitor of the present Pennsylvania College of Dental Surgery. He received his degree in dentistry on Feb. 29, 1856, and entered upon the practice of his profession in Philadelphia. He began the study of medicine at the University of Pennsylvania, graduating from there in 1859. The same year he was married to a daughter of George Craft, of Upper Greenwich, N. J. At the organization of the Philadelphia Dental College in 1862, Dr. Garretson became a member of the faculty as professor of pathology and therapeutics, but before delivering his course of lectures he resigned to accept the position made vacant by resignation of the late Prof. D. Hayes Agnew in the Philadelphia

School of Anatomy. He continued in charge of the school until 1864, when he gave up that position and entered the Philadelphia Dental College as professor of anatomy and surgery. During the war of the rebellion Dr. Garretson was for a time in active military hospital service. In 1869 he was appointed oral surgeon to the hospital of the University of Pennsylvania. In 1880 he became dean of the Philadelphia Dental College, which position he faithfully and acceptably filled until his death.

In the special field of his activities Dr. Garretson filled a unique place. He was the pioneer in a new department of surgery, viz.—oral, and the creator of its technique. He brought to the practice of his life-work the skill and manual dexterity of the trained dentist, to which was added the broad culture and intimate knowledge of his subject required by the educated surgeon. The history of his surgical work has yet to be written, but whoever prepares it will do injustice to Dr. Garretson if he fails to describe his kindness, tenderness, and ever-abiding sympathy with suffering, as well as the courage that enabled him to perform the most terrible operations with a skill not exceeded anywhere. With this educational equipment grafted upon his rich natural endowment of attractive characteristics, a combination resulted which easily accounts for his phenomenal success and wide reputation as a surgeon and as a teacher.

Broadly speaking, Dr. Garretson may be said to be a striking example of the self-made man. His love for his work, his faith in and respect for the possibilities of development in dentistry, and his ambition to secure for it the status and recognition it deserved, have borne abundant fruit in the example of success which he has left as a heritage to his profession.

The permanent record of his surgical work is embodied in his greatest literary work, the "System of Oral Surgery." This book has passed through six editions, the first appearing in 1869 and the last in 1895. Dr. Garretson was a contributor not only to the literature of his profession, but to general literature as well. His writings consisted of a number of separate book publications, as well as of contributions to periodical literature. Apart from his "System of Oral Surgery," he published works as follows: "Brushland," "Hours with John Darby," "Thinking and Thinkers," "Odd Hours of a Physician," "Nineteenth Century Sense," and "Man and His World." These were written under the *nom de plume* of "John Darby."

Dr. Garretson's love of the philosophy of all ages was deep and profound. His lectures on philosophical subjects, delivered at the College, will be remembered by those who heard them in their entirety, as containing some of the deepest thoughts conveyed in a most entertaining manner and with the least possible attempt at superiority.

He possessed to a marked degree attributes of simplicity and guilelessness. He had a childlike faith in the honesty of mankind; years never taught him even the shadow of a distrust or suspicion of his fellow-man, which might have spared him much of the care and anxiety which clouded his last days.

In response to a frequently expressed wish his body was cremated, and the ashes subsequently interred at the Friends' burying ground in Upper Darby—Dr. Garretson being a member of that faith. He leaves a widow and two daughters.



The Dental Digest.

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Original Contributions.

A BLOT ON THE PROFESSION.

BY GEO. H. CUSHING, D. D. S., CHICAGO.

There is no operation that the dentist is called upon to perform which is of greater importance than the removal of calcareous deposits from the teeth, whether they be of salivary or serumal origin; and probably no necessary operation is so often entirely ignored, or when undertaken, is so many times imperfectly and slightly performed. The evidence of this has been a matter of observation for many years by those who have given proper and earnest attention to the subject, and it is so constantly presenting itself that at this advanced period of dental practice it seems absolutely incomprehensible and, in view of the serious consequences which are sure to follow its neglect, almost monstrous.

These facts are testified to by members of the profession in all parts of the country, and the astonishment at such a state of affairs, so hard to believe, is universal. One gentleman relates that a few years ago a patient came to him suffering intense pain in his teeth and gums. An examination failed to reveal anything the matter with the teeth; there was no sign of decay and the teeth had the most extensive and beautiful gold fillings the dentist had ever seen; but between all the molars and bicuspid were deep depressions of gum tissue into which a small pea could have been dropped, and the calcareous deposits extended solidly from one tooth to another, pressing the gums away. The patient was told of the condition and that it was probably the cause of his suffering. "Why," he replied, "I had my teeth cleaned just before I left home a few months ago." After the operation was

finished, which gave him complete relief, he said, "Well, I never had anything like *that* done before." Now that patient had been under the care of the same dentist for years, a man of deservedly high reputation for skill, the evidence of which was apparent in the patient's mouth, and, alas, the evidence as well of his unpardonable neglect.

Another practitioner tells of a lady from a distant city who applied to him in great distress to know if anything could be done to preserve the few teeth still remaining in her head. She stated that she had been under the care of a well-known dentist, one of high repute, for twenty years, visiting him regularly every six months, and he had told her nothing could be done except to extract them. The dentist to whom she last applied said that the teeth were so loose they could almost have been removed with the fingers, and from the fact that her former dentist, in whose skill he had the fullest confidence, had assured her nothing could be done, he gave her no encouragement. But as she persisted in having the attempt to save them made, he removed the deposits, which extended nearly to the apical ends of the roots. This was easily accomplished, and with only three simple treatments he dismissed her for a month, at the end of which time the teeth were very much more firm; and two years after they were as firm in her jaw as any teeth with so extensive recession of the gums and absorption of the margins of the alveolar processes could ever be. She made the same remark as the first patient, "Why, my dentist never did that." Of course he did not do "that," and the neglect caused the trouble.

A young married woman who had been a patient of a certain dentist up to the time of her marriage, called upon him some time after that event and asked "if it was not necessary to remove the deposits from the teeth?" He told her that it was very important. She replied, "I knew you always removed them, but when I applied to Dr. Blank (her husband's dentist) to have them removed, he told me they must not be touched; that it was very improper to do so." This man had been in practice for over twenty years, and was of good repute in the community.

Now here were three men of high repute and of known skill in other matters, either ignorant or indifferent regarding this most important operation; criminal, whichever horn of the dilemma is:

accepted. These are but three out of hundreds of cases which might be cited, and such cases are constantly to be observed. One gentleman says he had two dentists, both of high standing, from widely separated parts of the country, as patients for this operation, and from their remarks, questions and admissions it was evident that they knew very little about the proper treatment and methods of removal of these deposits. One of them thanked the operator very gratefully and said he would hereafter treat such cases more intelligently and thoroughly.

This is a deplorable state of affairs. How is it to be accounted for? It is true that few of the text-books treat this subject with the fullness its importance demands, in fact but one, "The American System of Dentistry," gives it much attention. Dr. Harlan, in this work, does call attention to its great importance and gives in some detail the methods of operating, but not with half the earnestness the subject requires. Students would gather from reading the other text-books that it was not a serious matter, even if neglected; yet it is safe to assert that more teeth are lost from neglect to remove these deposits than are destroyed by caries. Then, too, most of the writers speak of the operation as if it were the most simple one the dentist is called upon to perform, requiring no special skill; yet there is no operation which requires at times so great skill, in which the "Tactus Eruditus," of which Dr. Kirk writes so admirably, is so essential, and its conscientious application so imperatively demanded.

It is to be greatly feared that this phase of operative dentistry is not sufficiently or thoroughly taught in our schools. All those who have taught in this department are well aware of the difficulty of getting students to treat such cases, and the obstacles in the way of teaching this operation are so great that it is not to be wondered at that teachers sometimes become so discouraged as to neglect in a measure this most important line of instruction. Nevertheless, it is most earnestly to be desired that greater attention shall hereafter be given to this matter in our dental colleges.

But suppose the text-books entirely ignored this subject, that would not be a sufficient excuse for this prevalent neglect, especially in view of the fact that our dental journals have brought to us monthly papers and discussions which for the past few years

have teemed with methods of treatment of pyorrhea alveolaris, both in its therapeutic and operative phases, in which the absolute removal of all deposits is acknowledged to be the chief factor. One could not fail to become educated in this direction if he read the journals with a view to enlarge his sphere of usefulness. Even the catalogues of the dental depots would prove largely educational to one noting the many admirable and delicate instruments at present manufactured for this operation.

What then can explain this indifference to and neglect of so very important an operation, and what can be done to arouse the proper spirit and so enhance the beneficence of our calling?

The purpose of this paper will have been accomplished if it stimulates those who wield a more trenchant pen than the writer, to so bring this matter before the profession at large as to force the delinquents into better practices and so to obliterate eventually this blot on the profession.

ANTERIOR TEETH.

BY DR. D. MURLLESS, HOLYOKE, MASS.; READ BEFORE THE UNION MEETING OF THE
NEW ENGLAND AND CONN. VALLEY DENTAL SOCIETIES, AT
WORCESTER, OCT. 23-25, 1895.

I ask your attention to a method of repairing and preserving badly broken down and decayed anterior teeth by means of crowns and shells; which method I will give briefly, asking you to supply your own experience and judgment where my explanation seems too short.

It has been the paramount custom in preserving the anterior teeth to fill them with gold. We all fully realize that the best of skill and the most patient efforts are necessarily expended on operations of filling the incisors, as they are of great importance to the personal appearance of the possessor. Since gold must necessarily be used in the great majority of cases, many of the operations are very difficult and expensive, and neither operator nor patient can afford to have them fail. And when one stops to consider and examine, it is wonderful what skill and patience are expended in connecting so closely and firmly so solid a metal as gold with so thin and frail a thing as the average decayed incisor

s; and besides being wonderful, when the gold is shaped and smoothly finished to the tooth, is it not a beautiful piece of work? It is marvelous that a tooth so treated will stand so much strain without either itself or the gold fracturing.

With the advance of dentistry came the hope of easier and better means of repairing such teeth, and many devices were brought out for this purpose, such as inlays and porcelain crowns of various kinds. Inlays for corners, and crowns, are desirable for their beauty and natural appearance, but their great fault is weakness; they are weakest just where they should be strongest, *i. e.*, at the neck of the tooth. Nature and necessity require strength at this point, and there is always danger of breaking the pivot or fracturing the root, aside from the unavoidable necessity of devitalizing the pulp. Gold contours are liable to fracture, as there are many cases where it is almost impossible to retain a filling, there not being sufficient tooth structure to support so large a piece or corner of gold.

Now if we consider an incisor with a third, a half, or even more, decayed and broken down from the aproximal and cutting edge, taking away a large corner of the tooth, and in many cases containing a live pulp, and when we reflect on the troublesome consequences of death of the pulp, or even pulp irritation, which is very likely to follow filling, we see that it is imperatively demanded that the effort at pulp-conservation be made. Such a tooth as I have described can be filled and restored to its original size and shape, by first filling with some plastic, and then putting on a gold cap or crown, with an opening in its face of such shape and size as will just cover the margin of the cavity, having but very little more gold in view than would be seen if the tooth had simply been filled.

There are many advantages in this method, as teeth can be saved that it would be nearly impossible to preserve by other treatments; for example, many times we find the molars of the lower set lost, and persons in such a condition in using their teeth bring the lower incisors against the lingual side of the uppers. Where they have been thus used for some time the lower teeth will be worn on the cutting edge and shortened, and the lingual surface of the uppers will be worn by abrasion, so much so that the under side of the uppers will often be worn away, forming a

shoulder at the neck of the tooth, and occasionally the labial surface will be worn thin. In such cases there is no way to retain a filling, but the tooth can be backed up with cement, and a cap, such as I have described, be telescoped over it. By this means the cutting edge is thoroughly protected, the whole tooth bound and held firmly together, and we may say it is as strong and serviceable as ever and needs no more care than if it were perfectly sound. I had successfully used this method in my own mouth some time before I saw it spoken of anywhere.

CHEMICAL OPENING AND STERILIZATION OF ROOT-CANALS.

A CLINIC BEFORE THE UNION MEETING OF THE NEW ENGLAND AND CONN. VALLEY
DENTAL SOCIETIES, AT WORCESTER, OCT. 23-25, 1895, BY
A. C. HULL, D. D. S., WORCESTER.

After putting on rubber-dam, I open into pulp-chamber with burs, etc. I then take a very small pellet of cotton with the pliers, saturate cotton with H_2SO_4 (sulphuric acid,) and place in chamber. By capillary attraction and moisture, for which the acid has an affinity, it will draw up into canals; I also assist it to enter channels by the use of a very fine Donaldson broach. I let acid remain about one minute, then neutralize by applying a strong solution of bicarbonate of soda; this causes quite a violent reaction, and carbonic acid gas is liberated, and sulphate of soda is precipitated. By the generation of the above gas the canals are pumped free of any debris and broken down lime-salts.

After this reaction has subsided I wash out with peroxide of hydrogen, three per cent.; this removes the crystals of sulphate of soda, then proceed as before with another application of acid, and neutralize with soda, until I have opened two-thirds of the distance, or a little more, to the apex. I then substitute HCl (Hydrochloric Acid), for H_2SO_4 (sulphuric acid), and chlorinated soda for neutralizing agent, in place of NaHCO_3 (bicarbonate of soda). The reason for this change is that we are nearing a point where we are to take into consideration, not only the tooth structure, but the tissues beyond the apex; therefore I substitute

HCl, (hydrochloric acid,) which has, in addition to its escharotic effect, disinfecting properties; also, as a tonic and astringent it is of great value in the treatment of tissues beyond apex in cases of induration and soreness. In substituting chlorinated soda we get a fairly good reacting and neutralizing agent, an antiseptic, deodorizer, stimulant and tonic for tissues beyond the apex, also a very good bleaching agent for tooth structure. The bleaching properties of the above are increased by the action of the acid, which liberates chlorine.

I use sulphuric acid at first, as it breaks down lime-salts more quickly, and bicarbonate of soda as a neutralizing agent produces a more violent reaction and a greater amount of carbonic acid gas is liberated, which pumps out all debris from canals; but after it has performed this office, it has exhausted all its resources. By substituting chlorinated soda, I get its useful properties, already mentioned, and a reacting and neutralizing agent that will do for the latter stage of the operation.

If there are indurated or inflamed tissues about the tooth, I have no hesitation in working just the point of the broach through foramina of buccal roots, which would carry with it a very little acid. This will not increase the irritation, but, on the contrary, will often relieve the same by cauterizing the tissues and destroying germs of inflammation.

The only broach I have used with success in these operations is a very fine Donaldson, with the hook or angle cut off at point, making an extremely fine, straight, and unbarbed broach. These have hard rubber handles and can be found at any dental depot.

For filling root-canals I use chlora-percha, quite thin; let it draw up into canals, then take a gutta-percha point on root-canal plugger and force the same into channel, which acts as a piston to carry filling to the apex.

In regard to care of instruments used during the operation, would say, I have on my operating table a strong solution of bicarbonate of soda into which I dip my instruments from time to time to neutralize acid.

This method will be found useful in treating cases the condition of which are like the following: a pulp which we have attempted to devitalize, and have succeeded in removing all but a small portion near apex, this being in an extremely sensitive con-

dition and stubbornly resisting all treatment and medication. These cases cause great suffering to the patient and are a source of great annoyance to the dentist, but quickly yield to this method with very little or no pain to the patient.

BRICKS WITHOUT STRAW.

BY GEO. L. PARMELE, D. D. S., HARTFORD, CONN.; READ BEFORE THE UNION MEETING OF THE NEW ENGLAND AND CONN. VALLEY DENTAL SOCIETIES, AT WORCESTER, OCT. 23-25, 1895.

Many of you no doubt remember Artemus Ward's old lecture on "The Babes in the Woods," in which no reference whatever is made to either infants or forests. Should my talk be of a similar nature as regards the title, you need feel no surprise. Bricks made without straw crumble easily, and have not, so to speak, sufficient strength of character to be of value to mankind. Now in our dental life and work we may readily find some things that may be likened to strawless bricks, such as the dentist who has lost his identity; that is, one who identifies himself with nothing, unless it be with some church, lodge, or military company, for the business he hopes to pull out of it. He has no object in life except the 'almighty dollar,' accomplishes no good, has no object in being. He is making bricks without straw. There are hundreds of this class right here in New England. You have never heard of them before? Why? Because they have become indifferent to their own interests and take no interest in the lives of others. They have never written a word for a dental journal; have never joined their city, state, or national association; they are simply running along in the same old rut, caring for nothing but that living which, they say, the world owes them, but which they are too indifferent to collect. To them, I say, let the profession know where you are; identify yourself with its interests; join your state and local societies, make yourself known at the meetings and be active in them. Take at least one live dental journal. Think. Have something to say and say it at these meetings. Make the members of the societies always pleased to welcome you. Do not, however, always talk shop. There are other things of interest in the world besides dentistry. Be jolly, too. Give

and take a bit of fun, and enjoy yourself while you live, for when you are dead you will be dead a long time.

Papers are often delivered and printed which certainly appear to be devoid of straw. It seems to me there is far too much writing simply for the sake of writing. This advice from the Surgeon General's office, to those about to write for periodicals, will bear repeating: 1st, have something to say; 2d, say it; 3rd, stop as soon as you have said it; 4th, give your paper a proper title.

There is also considerable talk at our meetings, principally by the man "who has never had a failure;" talk consisting largely of mud, with perhaps here and there a straw; statements that will not bear sun-drying, that will not resist the pressure of use. One writer seems to be so impressed with this fact that he suggests that "young men should learn not to monkey with ideas picked up at dental meetings." In spite of the fact that dental meetings are of the utmost value, there is still some sense in the remark, so while the young practitioner should attend such gatherings as often as he can, he should also heed the advice. Let him carefully consider all the ideas set forth and see if they contain sufficient straw to make them of value, before he finally adopts them.

Urging a man to write a paper on some subject he knows he cannot properly treat, in order to make the program look attractive, is asking him to produce bricks without the requisite materials. Lastly, electing officers and appointing executive committees and expecting them to get up interesting and valuable meetings without your hearty co-operation, is asking them to labor as did the oppressed "Children of Israel." Notwithstanding the fact that like an old hat, I have been used to stop a gap, if what I have hastily thrown together has at all lightened the duties of our hard-worked secretary and committee, I am pleased.

A young man once delivered an address, and when he got through he asked a friend; "Well, don't you think that was a finished address?" "Yes," said the friend, "I do, but there was one time when I thought it never would be." Rather than have this said of my paper, I will stop. I think it was Longfellow who said, "Let us then be grateful to writers for what is left in the inkstand; When to leave off is an art that is only attained by a few."

FILLING WITH GOLD: EXPERIENCES WITH THE LIBBY METHOD OF BURNISHING.

BY DR. C. L. DODGE, FALL RIVER, MASS., READ BEFORE THE UNION MEETING OF THE NEW ENGLAND AND CONN VALLEY DENTAL SOCIETIES, AT WORCESTER, OCT. 23-25, 1895.

In presenting this paper for your consideration I do not claim new or original ideas, but simply place before you some of the methods I am practicing with a good degree of success. Some of these features I may have evolved, and for others I am beholden to my professional friends, especially my present method of inserting gold fillings, it being to an extent that recently introduced to the profession by Dr. Henry F. Libby, a system of burnishing in fillings. I do not in all cases follow out his methods in their minutest details, but the underlying principles as I conceive them, the protection of frail enamel walls, (and they are all frail in a degree,) and the close adaptation of the filling to these walls, are carried out by these methods. During the fifteen months I have been practicing this method I feel I have accomplished better results than ever before.

Let us first consider the preparation of the cavities. The underlying principle or foundation of success with gold, as with other fillings, is a proper cleansing and shaping of the cavity. Undercuts which will prevent the rolling of the filling when under pressure, are a necessity where they can consistently be obtained. Where this is not possible, other methods must be resorted to, but be sure you have your filling well anchored, so that when "the rains descend and the floods come and beat upon" that filling, it will stand because it is well anchored in the tooth.

Let us take for example an aproximal cavity in a superior incisor. After thoroughly cleansing the cavity of decayed matter, we commence at the cervical portion of the cavity with a drill or bur, making a small pit toward the lingual surface and upward, and another toward the buccal surface and upward, and between and connecting these pits, a channel. We then bottom the channel and pits with an oval or inverted cone bur, forming an undercut within an undercut and one from which gold thoroughly packed cannot draw. We prefer the oval bur as causing less pain to the patient than the acute angle and sharp corner of the in-

verted cone, and as also allowing a more thorough packing and adaptation of the gold to all portions of the undercut. Having obtained our undercut at this part of the cavity, we now turn our attention to the incising portion. Here we endeavor to obtain an undercut which will be as nearly similar to that at the cervical portion as possible. But owing to the narrowness of the cavity at this point and the danger of impinging upon and fracturing the enamel, we can generally get but one retaining pit, which we bottom as before. From these pits and undercuts we start our filling which, when completed, is thoroughly dovetailed into the cavity.

Let us now consider a cavity similarly located, and one which often presents itself, where the walls are so far destroyed that it is not possible, consistently with safety, to get these undercuts; a cavity not in the least well shaped for holding a filling. In such a case we use anchor screw posts, upon which we find we can generally place great reliance. These posts, being not over 1-32 of an inch in diameter and $\frac{1}{8}$ long, are well adapted to this work, as they are not large enough to occupy much room in the cavity and are sufficiently so to insure a good and secure anchorage. If the condition of the cavity warrants undercuts at the cervical, but is badly broken away at the incising portion, and this means what is usually termed a contour filling, we use the post only at this point, inclining the top toward the cervical margin, thus forming a lock for the filling. We will now look at the margins of the cavity. If they are very thin and frail we cut them away until we have a firm substantial margin, for unless we attend well to this feature we soon find them crumbling, if they do not during the manipulation of the filling. Having so trimmed them, we now slightly bevel the outer edge back from the cavity, just enough to corner them as it were. They are now in a condition to burnish the gold upon without danger of disintegration. We would say at this point that we generally apply the rubber-dam previous to making our undercuts. Our method being to take in not only the teeth to be filled, but one on either side of these, having a double object in view in taking in these extra teeth, one being to obtain more room in which to work, the other, to more effectually secure the cavity against leakage of saliva, for we frequently find it oozing out around the outer tooth, there being a

liability of more strain upon the rubber at this point. In ligating the teeth after the rubber is in position, our method is to make a double turn of the ligature around the neck of the tooth, then a double turn of one end around the other, drawing the ends tight, thus making the first part of the knot. This will obviate slipping while we are tying the second part, which when completed will be what I understand to be a square or surgeon's knot. We can now feel reasonably sure the ligature will remain in position and more effectually prevent leakage than when only a single turn is taken. Perhaps it may appear to you that this double tying will be unnecessarily bulky and more painful to the patient, but the proof of the pudding being in the eating, I would suggest that you try it, and I feel you will be sufficiently well pleased with the result to continue its use.

Owing to the great competition for work in our line, and the general desire on the part of our patients to obtain this work at the smallest possible cost to themselves, the incentive is quite general among operators to accomplish it in the least possible time and with the least possible cost for material. This is a sad mistake. The axiom, "What is worth doing at all is worth doing well," was never more applicable than it is to the operations performed by the dentist. We are operating upon living tissue, and if the work is not properly performed, no amount of afterwork can fully remedy the defect caused by hasty and ill-performed operations. We can purchase gold and other materials at pretty much our own price, but we seldom get more than we pay for, in this line as in others, and let me say, gentlemen, that in nine cases in ten, when we try to save a dollar in this way we eventually lose two.

Dr. Libby's method in filling these cavities, as I have seen it practiced by him, is to fill the undercut with a serrated point hand-plugger until he has obtained a firm anchorage of gold, then with the corkscrew-shaped burnisher, first passed over the gold, he carries it, piece by piece, burnishing each piece into position as it is carried, as the margin of the cavities are reached. We who have used the mallet so constantly in the past, begin to realize what, to our minds, is the most beautiful feature of this method. We experience no fear of disintegration of the marginal walls, for the gold is gently burnished up to and over them, with a close adap-

tation which will not fail to show to good advantage later. The sense of security and comfort we feel at this point of the work is delightful, and when we have trimmed and finished our fillings, upon close examination of these margins we see no reason for feeling differently. In the years I have used the automatic mallet my mind has been greatly exercised upon this point, and while taking every precaution to prevent it, I never felt sure that this disintegration did not exist. For although it might not fully show at the time of the operation, I felt that the integrity of the tissue at this point was liable to be greatly impaired, if not by actual contact with the instrument, at least by the shock. But with this method of filling a greater sense of security exists.

We have often heard it remarked that a firm, dense filling could not be obtained by the method of burnishing. This is a decided mistake. The fillings I insert today I feel are in every respect as dense as those I used to insert with the mallet. I wish to say here that pressure upon the gold with the burnisher must be exerted to just the right degree to produce the most satisfactory results. Too much pressure, too heavy and long continued burnishing, causes the gold to become brittle and causes danger of cleaving from the main body. A moderate pressure, properly exerted, will produce a firm, dense filling and one in every way satisfactory.

There is a feature of this work which may not be readily recognized at first—it is this, It is extremely necessary that the instruments should have and retain a fine polished surface, otherwise we may find in the process that instead of passing over the gold smoothly, the instrument drags. This is caused by a slight coating of gold upon the instrument. We cannot accomplish satisfactory results while this condition exists, but a moment's application of the instrument to the buff wheel will remedy this trouble. It is well to send the burnishers to the laboratory to be buffed after each operation. This occupies only a few moments of time and well repays the trouble.

At the time of my starting in upon this work I ordered through Dr. Libby a complete set of his instruments. When they were received I examined them with a strong magnifying glass, finding in them many scratches and much unevenness of surface. I immediately set to work to remedy this defect, by buffing them

with buffs of chamois skin and cotton-flannel, using rouge for the final finish, with the result that upon again examining with the glass, a fine, highly polished surface was presented. I feel that this surface is necessary to produce the best results.

In the insertion of these fillings we do not always confine ourselves to the burnisher from start to finish, especially in the cases where the anchor screws have been used. In these cases we fill with hand-pluggers until we have covered the posts, when we finish with the burnisher. I have used in connection with the instruments furnished by Dr. Libby, an instrument I have had made, corkscrew-shaped with a ball end. These are made right and left and of varying lengths. I find them valuable adjuncts to the Libby set.

And now one word in regard to finishing our fillings, and this is a matter of no slight importance, for it is necessary that this part of the work should be as thoroughly performed as the previous portions. We have reached a point in the operation where, especially if the filling is large, owing to the close application required, we are somewhat tired and willing to see the end. Our patient also is often very anxiously inquiring if we are nearly through, expressing a willingness to be satisfied with the operation if we do not carry it further, and the incentive is often strong to yield to this pressure. This, however, will never do, for unless we have finished our filling absolutely flush with the cavity margin, the overlapping edges of gold will surely cause future trouble, by holding secretions, etc., which will eventually render inefficient what otherwise would be good work.

THE SAVAGES ARE, UNCONSCIOUSLY, BACTERIOLOGISTS.—M. Dantec has demonstrated that the arrow poison used by the natives of the New Hebrides contains neither serpent venom nor vegetable extract. It contains two deadly disease germs—the vibriion septique, which causes that form of blood poisoning known as malignant edema, destroying life in from twelve to fifteen hours if still alive, and the bacillus of tetanus, which, if the former poison prove inert, will finish up the unlucky victim in a much longer time. The poison is obtained from the earth in certain marshy places. The horse cannot be the origin of the tetanus germ, as that animal is unknown in that entire group of islands.—*Am. Microscopical Jour.*

Digests.

The Ohio Dental Journal for October, 1895.

"A STUDY IN DENTAL ANESTHESIA," by N. S. Hoff, D. D. S., Ann Arbor, Mich.; read before the Tri-State Dental Meeting, June, 1895. *Nitrous Oxid.* Its comparative safety has made it popular for all brief surgical operations, but it has several objectionable features, chief of which is the tendency to produce symptoms similar to asphyxia and consequent dangerous results. Where oxygen is combined with nitrous oxid in some form as a corrective, this tendency can be successfully overcome. The advantages of mixing lie in the fact that the asphyxiating symptoms are delayed or prevented, and a larger quantity of nitrous oxid is presented to the sensory tissues and consequently more profound anesthesia results. More time is required for effects, but a somewhat relative lengthening of the period of insensibility follows. Prof. Paul Bert succeeded in maintaining complete anesthesia for 26 minutes with a mixture of $N_2 O$, with no unpleasant symptoms of any sort, by administering the mixture under a pressure of one and one-half atmospheres. Prof. Hillischer obtained complete anesthesia for a shorter period with a similar mixture without the addition of atmospheric pressure. Prof. Hewitt, after experimenting in over 800 cases, concluded it was a practicable idea and invented an appliance for mixing and administering these gases. He found that from 10 to 12 per cent. solution of O in $N_2 O$ answered general purposes, but that individuals required modification of the formula, and that an apparatus capable of ready and quick adjustment was necessary to meet various symptoms as they arose, and that no diagnosis was possible by which the best proportions of the gases could be prepared in advance, but the oxygen supply must be brought on as needed. In using this mixture and apparatus in 67 tabulated administrations, it was found that anesthesia was brought on in 66 seconds as the shortest and 186 seconds as the longest period, and the shortest duration of complete anesthesia was 44 seconds and the longest 80 seconds. It was observed that recovery was not so prompt as with $N_2 O$ alone.

The quantity of O will vary with different persons and must be controlled by the administrator. It is best to begin with a small percentage and gradually increase it as indications demand. Excitement stage is shorter with a smaller per cent. of O. The face piece must fit accurately to exclude all air. Silence and an absence of contact with the patient are essential to quiet and successful results without excitement or violence. The margin between the peaceful anesthesia of the mixture and the usual manifestations of nitrous oxid is so narrow that the patient must be closely watched. More oxygen should be given to debilitated or weak persons than to strong-minded, stubborn or vigorous ones. The conjunctival reflex is the best indication of complete anesthesia, but snoring and relaxation are also useful indications. The first application of the forceps will sometimes get a slight reflex response, but not sufficient to require any further anesthetic. Patients do not have the horrible dreams nor scream under the mixture as they do with nitrous oxid alone. They also feel better on recovering and present a better appearance. The tongue and mucous membrane are not congested or swollen. The mixture acts well in cases of weak circulation, as the pulse is stronger and steadier without the usual primary excitement of nitrous oxid and none of its depressing after effects. The unfavorable action of the mixture causes considerable prostration, due to the longer and more complete anesthesia. A feeling of nausea and sometimes vomiting. More time must be given to recovery. More skill is required to administer it and pay attention to the manifestations and prompt application of remedial measures. More time is consumed in the operation. It is recommended for use in children, anemic and debilitated patients; persons easily anesthetized by nitrous oxid. Persons who do not take nitrous oxid kindly; old people, persons with diseased circulatory organs.

Some points for further study and investigation in this connection. I would suggest the following: (1.) The use of gasometers to obtain required and uniform pressure, and the amount of pressure necessary to secure the best mixing or diffusion of the gases in definite proportions. (2.) The extent to which this mixture may be used without injurious results, such as the paralysis of the vital nerve centers experienced with other anesthetics. (3.) A qualitative analysis of the blood under complete anes-

thetia with the mixture, with special reference to its oxygen.
(4.) A careful experimentation as to the ultimate physiological effect upon the sensory tissues.

Cocain. When I first used cocain I was tempted to give it up because of the difficulties and dangers attending its use, but its satisfactory obtundent qualities compelled me to continue its use, so I began experimenting to make the drug practicable and safe. I began with a 6 per cent. solution for hypodermic use and on the basis that one grain could be safely used as a dose. I soon discovered that either the dose or concentration was entirely too high, and I now know both were. I experimented with various solutions and finally concluded that for hypodermic injections a 2 per cent. solution in water was sufficiently saturated for any purpose, even for use in anesthetizing pulps, and in the majority of cases where it can be used, a 1 per cent. solution would accomplish definite and satisfactory results. I have even secured very satisfactory anesthesia, for extracting a tooth, with a solution of the strength of 1-5 of 1 per cent. The dose of cocain I have gradually reduced from 1 grain hypodermically to from 1-16 to $\frac{1}{2}$ gr.

It is well known to all that the great objection to cocain lies in its tendency to induce hysteria, when given in small doses, due to its stimulant effect upon the nervous system; and secondly, its depressing action upon the respiration and heart when used in excessive doses. The tendency to hysteria and respiratory difficulties are the most important complications to consider, for the reason that they occur when least expected and sometimes with small doses, while the depressing heart effects only occur in peculiarly weak conditions of this organ, or as secondary to the respiratory difficulties, or because of excessive dosage. My first experiments to control this nervous excitement were with the standard narcotics, morphin and chloral. I soon found that many persons were highly susceptible to the use of morphin and that chloral was objectionable because of its bulk and its excessive irritating character when injected into the soft tissues, causing sloughing of the tissues. The experiments of Dr. Pruyn convinced me that morphin was the most accessible drug to control this excitement effect, and on looking it up I found that atropin was morphin's great antagonist, especially against its poisonous

and nauseating effects. I therefore began using a combination of cocain, morphin and atropin, and soon found that I had a satisfactorily corrected formula, that the drugs seemed to harmonize therapeutically in producing a more powerful local anesthesia, and that systemic disturbances were very rare with proper doses. This combination I am now using as a local obtundent with good results. I use sterilized water to make the solution, and to prevent possible decomposition make the solution fresh daily or as needed for use. The formula I use is as follows:

R. Cocain	gr. $\frac{1}{2}$.
Sulfate of Morphin.....	gr. $\frac{1}{8}$.
Sulfate of Atropin.....	gr. $\frac{1}{200}$.
Sterilized water, gtts	xxx.

Mix and inject hypoder. gtts., v to xv.

For convenience I have had the cocain, morphin and atropin made into soluble tablets by Parke, Davis & Co., of Detroit, and in this way solutions of any strength desired may be quickly and accurately made with little or no inconvenience. The sterilized water I use is distilled water containing from 8 to 10 per cent. of listerine or euthymol to keep it sterile. If you desire to make a 2 per cent. solution, all that is necessary is to dissolve one of the tablets in twenty-five minims of water. A 1 per cent. solution can be made by dissolving one tablet in twice this quantity of water, or fifty minims. A 4 per cent. solution can be made either by reducing the water one-half or adding another tablet to the twenty-five minims, etc., etc. The advantage of this method of making solutions is that you can always have pure, clean solutions and the preparations are portable in small compass. The drugs used in the tablets are the purest that can be had and the firm assure me they are especially careful in filling all such orders. Another advantage is that other correctives or adjuvants may be added to this formula when the solutions are made.

In my opinion the manner of using cocain in dental practice has much to do with the disrepute into which this most valuable drug has fallen. It is an excessively poisonous substance and must be used with the greatest caution and care. There is a tolerably well marked outline beyond which clinical experience has demonstrated one cannot go without hazard. Not more than one-half grain, nor in stronger than 2 per cent. solution, should

ever be used at one sitting as a hypodermic injection. It should be used with a clean syringe in perfect order and injected only a little faster than the tissue will absorb it. Excessive pressure on the syringe will cause irritant results and introduce more of the drug than is necessary to produce desired effects. All excess or overflow should be prevented or absorbed before it comes into contact with the tongue, as it will be quickly absorbed by that organ, or if swallowed will produce paralysis of the pharyngeal and laryngeal muscles and induce dyspnea and develop hysterical symptoms. The best systemic fortifier is coffee or food.

Journal of the Franklin Institute for November, 1895.

"ALUMINIUM SOLDERS," by Joseph Richards, read before the Institute. As soon as aluminium came into general use it was found that it was very difficult to solder it satisfactorily. The ordinary alloys used for soldering would not attach themselves to it, despite every usual precaution, and it was seen that unusual solders must be devised. M. Christoffe, the goldsmith of Paris, discovered that aluminium was wetted by, and could therefore be soldered with, either pure zinc or pure tin. It is indeed true that both these metals hold firmly to the aluminium, but the zinc seam is brittle and crystalline, will not stand working, and discolours badly in a short time, while the tin seam has the disadvantage of disintegrating and falling to pieces in a few weeks. This latter phenomenon is due to the fact that certain alloys of tin and aluminium will decompose spontaneously by the action of the air. This is particularly true of tin containing small proportions of aluminium, up to 10 per cent.; for, if a bar of such alloy is left in the air, and portions are broken off at regular intervals, a change will be visible in the section, proceeding from the outside towards the centre; and while at first the alloy is strong and tough, it gradually becomes more and more friable until, at length, when the change has reached the centre, it breaks like a pipe-stem. I have observed a bar, 1-16 inch thick, to become decomposed all through in three weeks, and on thinner sections the effect is still more marked. Tin containing 0.5 per cent. of aluminium was rolled by a Philadelphia maker of tin-foil into foil 0.001 inch thick, and, while it rolled beautifully, yet it two hours thereafter the whole sheet was as brittle as glass. Now, bearing these facts

in mind, it can easily be understood why a joint soldered with tin falls apart. The tin attaches itself to the aluminium by forming an alloy at the junction, and this alloy decomposes in a short time. Alloys of aluminium and zinc were tried by the Tissier Bros., but were found to be too brittle. M. Hulot proposed to first plate the aluminium at the joints with copper, and to solder coppered surface with ordinary solder. The best solders of Mourey, a Parisian goldsmith, were alloys of aluminium and zinc, to which small proportions of copper were added, to give them toughness. The chief difficulty with these solders is their high melting-point; the zinc, which melts only at incipient red heat, being the most easily fusible ingredient. For brazing and blow-pipe works, such high-melting alloys can be used, and the addition of a little silver improves them still more; but none of them can be regarded as convenient for use with the soldering-iron. It has been claimed that by using silver chloride as a flux, aluminium can be soldered in the ordinary way with ordinary tin solder; but this method has not proved satisfactory in practice, and, even if it were, the flux is too expensive.

Starting with a full understanding of the difficulties of the problem, and a knowledge of what had been previously tried and found wanting, I proceeded with the object of finding, if possible, a solder which should have the following qualifications: (1) It must wet the aluminium and adhere firmly; (2) It must not disintegrate after exposure to the air; (3) It must be as malleable and strong as aluminium; (4) It must have a low melting-point, so as to be easily worked with a soldering-iron; (5) It must have the same color as aluminium, and not change color; (6) It must be cheap enough for general use. After experimenting about two years, it was finally found that an alloy of zinc and tin in certain proportions, containing a little aluminium and some *phosphorus*, realized almost every qualification. The alloy used for some time was made by fusing together: Aluminium—1 part; ten per cent. phosphor-tin—1 part; zinc—8 parts; tin—32 parts.

It was found, however, that, on re-melting this solder, a more fusible alloy liquated away from it. It appeared reasonable to assume that this more fusible part was a true alloy of zinc and tin, and, therefore, a more stable compound. This fusible portion was also found to solder better than the original mixture. This

liquated solder was therefore analyzed, with the result that its composition was found to be very close to that expressed by the formula Sn_4Zn_3 . The solder which I now use is made to correspond closely to this formula. It is obtained by using the ingredients in the proportions 1, 1, 11, 29, instead of 1, 1, 8, 32, as previously described. The percentage composition of the several alloys described may be thus compared:

	Original Solder.	Found in the Liquated Alloy.	The Formula Sn_4Zn_3 Calls for	Solder as now made, Contains
Aluminium..	2.38	—	—	2.38 } Zinc+Aluminium,
Zinc.....	10.04	—	29.3	26.10 } 28.57 per cent.
Tin.....	78.34	71.65	70.7	71.19
Phosphorus..	0.24	—	—	0.24

The percentage of zinc in the new solder is lower than called for by the formula Sn_4Zn_3 ; but since aluminium and zinc are metals having many physical analogies, it was thought advisable to bring the combined percentage of these up to that required for the zinc alone. Further, as the tin is most liable to lose by oxidation during the mixing of the solder, it was thought best to have it slightly in excess.

The Western Dental Journal for November, 1895.

"EPILEPSY FROM DENTAL IRRITATION," by J. D. Patterson, D. D. S., Kansas City, Mo.; read before the Odontographs of Kansas City, Nov. 9, 1895. In 1876, at Lawrence, Kas., I was called to assist in the treatment of a patient suffering from frequent attacks of epileptic spasms, and the outcome of the case showed so clearly the connection between dental irritation and reflex neuroses that since then I have carefully noticed such manifestations. The case at Lawrence was a girl, aged 8 years, who for a year before frequently suffered with spasms or convulsions, which would come on without warning. At school, at home, or at play, she would be seized with these fits, accompanied by violent muscular contractions in various parts of the body. At one time these contractions would force the fingers of the hand into unnatural and rigid positions, at times only one finger doubling up, and again all the fingers clasped tightly, the nails leaving their imprint upon

the palm. Similar contractions would appear in the toes of the feet. In one spasm, which I witnessed myself, the hand at the wrist-joint was bent at a right angle with the arm and could not be straightened until the spasm passed. The usual methods of treatment, by two physicians, long instituted, had failed to give permanent relief, and by their advice she came for treatment for dental irritation. There were no decayed teeth. The eruption of the permanent teeth were in various stages and considerably delayed. Noting the points where irritation appeared from coming teeth and delayed shedding of deciduous teeth, I lanced the gums and removed deciduous teeth where there was suspicion of irritation, with the result that the epileptic seizures ceased. This was repeated whenever these attacks came on, and it is sufficient to say that relief was always complete. Not until all the permanent teeth were completely erupted did the attacks entirely cease. The patient, at first a strong, healthy girl, became anemic, while the earlier treatment was of no avail; but rapidly improved when the relief from dental irritation was instituted, became strong, and is now the mother of a family. The epileptic spasms had not returned up to three years ago, when I last could hear from her.

Passing over somewhat similar but slight experiences in other cases, I will direct your attention to a patient, a lad now under my charge, who some three years since, when at the age of 7, commenced having fainting spells or fits, which puzzled all who were called in consultation. It was called epilepsy, St. Vitus's dance and hysteria by various physicians and surgeons. The patient was treated variously, some believing that stomach trouble caused the attacks; others that an old attack of diphtheria had left its mark; others that ocular difficulties existed; that the viscera was affected; that malaria was present, or that self-abuse was at the bottom of the trouble. Through all the varied treatments no permanent relief had been attained. The spasms, first presenting at the rate of two or three a day, increased to at times fifty or sixty in twenty-four hours. During the first year of this patient's trouble I extracted for him a deciduous superior lateral which was delaying the eruption of its successor, and shortly afterward made a thorough examination to ascertain if any dental irritation existed which would cause the epileptic spasms. I could find none, and gave up the idea that the teeth were concerned in the distressing

disease. When the boy returned home, about four months since, his physical condition had suffered very much; emaciation and an insane expression were the principal appearances noted. Some three months ago, one Sunday morning, I was going into the city and on the cars sat next to the father and his invalid son. It was noticed that the boy's face was somewhat swollen upon the right side. I induced them to come to my office, and, there being some inflammation over the deciduous molars, I removed all of the remaining deciduous teeth upon the right superior maxilla. A very few days later one of the permanent bicuspid made its appearance, and the improvement in the patient was marked, the spasms being fewer and less severe.

Four weeks ago to-morrow I removed all of the remaining deciduous teeth, now believing that, after all, dental irritation was at the root of the difficulty. The teeth then removed were the left superior first and second premolars and cuspid, lower left second premolar and cuspid, and lower right first and second premolars and cuspid. Since that time the improvement has been notable, and we are justified in believing that when all dental irritation can be removed a cure will be effected. The boy has gained in flesh and color, and an intelligent expression has taken the place of the vacant and imbecile one. The attacks are still fewer in number and severity. Examination yesterday showed considerable inflammation upon the left inferior maxilla at the point where the second bicuspid is forcing through. I have an appointment with the patient, and will thoroughly free the coming teeth from pressure of overlying tissue. I will also fill the superior first molars, which are carious to a medium depth. These cavities have not yet reached the neighborhood of the pulp, but every experienced dentist knows that even superficial decay is at times so sensitive that reflexed lesion has resulted when the system is in a predisposed condition, and I shall endeavor to scrupulously remove every possible source of pain. When this is done, I may look for a cure. I will conclude by giving one or two points which the discussion of these cases seems to indicate as important: 1. Dental irritation may induce pathological conditions in other parts of the body, or in the nervous structures themselves, without the existence of pain—or, at least, without intimation of pain on the part of the patient. 2. If there exists any possible

dental irritation in such diseases as epilepsy, chorea, headache or insanity, remove at once all such suspected irritation. 3. "The practical lesson" is that these cases demand of the dentist a wider knowledge and more general training than we have, in order that the subtleties of disease from the teeth may not deceive us.

The British Journal of Dental Science for November, 1895.

"ORAL SURGERY," by Edmund W. Roughton, B. S., M. D., (Lond.), F. R. C. S. Eng. *Odontomes*. These are tumors composed of dental tissues in varying proportions and different degrees of development, arising from tooth-germs or from teeth still in the process of growth. As the pathology of this class of tumors is intimately connected with the development of the teeth, it will be well to remind the reader how a tooth is formed. Early in intra-uterine life the epithelium of the gum sends down a process into the subjacent tissue extending the whole length of the jaw (*common enamel germ*). From the deep aspect of the common enamel germ a number of flask-shaped epithelial bodies project (*special enamel germs*). Each is connected with the common enamel germ by a narrow band of epithelial cells (*funicular bands*). Each special enamel germ is met and indented by a differentiated portion of the subjacent connective tissue (*dental papilla*), the arrangement being comparable to a finger pressed into a flaccid india-rubber ball. The connective tissue around the papilla and enamel germ becomes fibrillated and forms a kind of capsule (*dental sac* or *follicular wall*). The complete structure is called a *dental follicle*. The enamel germs of those permanent teeth which replace temporary ones are formed by an outgrowth from the funicular band. Sometimes an epithelial outgrowth springs from the funicular band of the permanent tooth, and represents the enamel germ of the third dentition of some animals. The enamel germ of the first permanent molar is given off from the posterior extremity of the common enamel germ. The enamel germ of the second molar springs from the funicular band of the second. The whole of the epithelium of the enamel germs does not become converted into enamel, the funicular bands and rudimentary third enamel germs remaining as collections of cells under the gum and in the alveolo-dental ligament. Occasionally these embryonic remains spring into activity after all dental development has

ceased, giving rise to some interesting tumors to be considered presently. The permanent teeth are surrounded by bone except where the funicular band remains. In this situation there is a canal in the bone (*iter dentis*) occupied by a fibrous band (*gubernaculum*) containing epithelial remnants of the funicular band. The permanent tooth reaches the surface and is "cut" by traveling along the iter.

The following table shows at a glance the portion of the tooth and the kind of tumour attributable to each part of the embryonic structure:

EMBRYONIC STRUCTURE.	ADULT STRUCTURE.	TUMOUR.
Enamel Organ.	Enamel.	Epithelial Odontomes and one form of dentocysts.
Papilla.	Dentine and Pulp.	Radicular Dentomata and Osteo-dentomata.
Dental Sac or Follicular Cementum wall.		Cementomata. Fibrous Odontomata. Follicular Odontomata. Compound Follicular Odontomata.
Complete germ.	Tooth.	Composite Odontomata.

Epithelial Odontome.—Although this disease was first described seventy years ago, it is only during the last few years that its true pathology has been appreciated. The older works on Surgery called it multilocular cystic disease, cystic sarcoma, and adeno-sarcoma; the first of these names accurately described the naked-eye appearances of the tumour, but the two other names erred in inferring the microscopical structure from the macroscopical appearances. In 1879 Falkson and Bryk recognized that the microscopical structure of the tumour was almost identical with the enamel organ. In 1882, Eve, whilst recognizing the true structure of the tumour, attributed its origin to an overgrowth of the epithelium of the gum of a cancerous nature, a view not in keeping with the clinical history of these growths.

Morbid Anatomy and Pathology.—These tumors most commonly affect the mandible. They grow between the plates and expand them in an irregular manner. On section, the tumor is seen to be composed of a congeries of cysts varying in size from an inch in diameter down to minute cavities too small for the eye

to perceive. The cysts usually contain a brownish mucoid fluid. They are separated from one another by solid septa which are composed partly of the expanded and displaced bone, and partly of a reddish-brown material which consists of the proper tumor substance which has not as yet become cystic. The method in which the cysts are formed is explained by a microscopic examination of a section of the solid portion of the tumor. It is then seen that the tumor consists of columns of epithelial cells, separated from each other by connective tissue septa. The epithelial cells appear to be arranged in rounded alveoli, but the appearance is simply due to the long tortuous columns of cells being cut across. The cells at the periphery of each column are columnar in shape, but as we trace them towards the centre, we find that they are undergoing mucoid degeneration, so that small spaces are formed. It is by the distension of these spaces that the large cysts are formed. The section of these epithelial columns presents a very close resemblance in structure to an enamel organ, but there is never any formation of enamel. The connective tissue stroma of the tumor is composed of fibrous tissue with a few nucleated cells, and contains but few blood vessels. These tumors are supposed to originate from those portions of the enamel germs which do not in the ordinary process of development become converted into enamel (*paradental epithelium*). We are completely in ignorance as to why these cells should lie dormant for years and then suddenly start into activity, as if they were afflicted with a nightmare and felt compelled to grow into enamel organs of fanciful shapes and extraordinary dimensions.

Clinical Characters.—This disease may occur at any age, but is most commonly seen about the age of twenty. It most often affects the molar region of the mandible; when it affects the maxilla the tumor usually occupies the antrum. It grows very slowly; a tumor the size of an orange may have been growing for ten years. It expands the jaw, sometimes equally in all directions, sometimes the inner and sometimes the outer plate is more bulged than its fellow. The surface of the tumor is rounded and more or less lobulated. To the touch the bulk of the tumor is of bony hardness, but there are usually one or more spots where the growth can be indented by the finger, showing that it is really cystic. Sometimes one or more of the cysts

bursts into the mouth and discharges a dark brown fluid. Some of the teeth belonging to the affected portion of the jaw are very often missing, and those that are present are usually much disturbed in position. The neighboring lymphatic glands are not affected. The disease does not recur locally after complete removal, and dissemination in other parts of the body does not take place. It will be seen therefore that the disease is essentially innocent in nature, as innocent in fact as the ordinary fibro-adenoma of the breast. But this is not always so; sometimes the connective tissue stroma, instead of being purely fibrous, is sarcomatous in nature. In such tumors recurrences *in situ* after removal, and dissemination may take place. It is very doubtful if the epithelial elements of the tumor are ever malignant. Heath records a case in which a typical epithelial ulcer appeared in the situation from which a "cystic sarcoma" had been removed eleven years previously. The facts recorded in reference to this case are very far from sufficient to prove that the original tumor was a malignant one.

Treatment.—The whole growth must be completely removed, but it is not necessary to remove any surrounding healthy tissue. If the growth be not completely removed, the portion left behind will continue to grow, and will in time produce a tumor as large as the original one; this is not recurrence in the sense in which the word is used when speaking of malignant tumors. The operative procedure necessary to remove the growth must be determined in each case by its size and situation. If it be small and accessible from the mouth it is better to operate from within so as to avoid deformity from scarring. An incision must be made through the mucous membrane of the mouth and the growth completely gouged away, so that nothing remains but a cavity with healthy bony walls. The bony walls, if much expanded, may be pressed together, care being taken not to fracture the jaw. If the growth be too large to be dealt with from inside the mouth, it must be exposed through an incision on the face, so planned as to leave the smallest and least noticeable scar. The cavity in the bone is allowed to granulate up, so that the site of the tumor becomes filled with fibrous tissue. The solid portions of the tumor should be examined microscopically, particular attention being directed to the connective tissue stroma between the epithelial

columns. If the connective tissue contains any sarcomatous elements, recurrence of the growth should be feared, but if formed of mature fibrous or fibro-cellular tissue the cure will be permanent. If recurrence takes place, the affected half of the bone should be removed.

Dental Cysts.—Under this name authors have described two conditions which closely resemble each other clinically and in naked-eye appearance, but which differ essentially in their pathology. One is a form of odontome, and the other is of inflammatory origin. As one clinical description will serve for both kinds of cysts, we will describe them together.

Symptoms.—They are met with more frequently in the maxilla than in the mandible, and generally in the neighborhood of the incisor or cuspid teeth. They are usually of small size and come away with the tooth when it is extracted, but sometimes they may attain considerable dimensions, and may cause more or less expansion and absorption of the outer wall of the maxilla, so that the bone crackles when pressed with the finger. Sometimes they may involve the antrum secondarily, by causing absorption of the intervening bone. They are always unilocular, and do not contain any tooth or rudiment of a tooth. The fluid which they contain may be clear yellow or reddish serum, a thick glairy fluid of varying colour, or a semi-purulent fluid. The growth of the cyst is usually slow and painless; one or more teeth in the neighborhood are often carious.

Pathology.—Microscopic examination shows that some of those cysts are lined by a layer of epithelium similar to that of the enamel organ, and that others are destitute of any such lining. The first variety is supposed to be formed from the paradental epithelium. It is therefore closely allied in nature to the epithelial odontome already described, but differs from it in that the cyst is unilocular and is devoid of the solid epithelial columns found in the multilocular tumour. Some authorities think that the paradental epithelium may be started into activity by the irritation of a carious tooth in the immediate vicinity. To distinguish it from the other form of dental cyst this condition might well be termed "unilocular cyst or odontome." The second variety is of inflammatory origin and is always found in connection with a diseased tooth. The inflammation starts in the apical space

in the same way as an alveolar abscess, but the process is extremely chronic and leads not to the formation of pus, but to an accumulation of serous fluid enclosed within a fibrous sac. For this variety of dental cyst the old term "perio steal" may very well be retained.

Treatment.—The treatment of dental cysts is the same as that of follicular odontomes (dentigerous cysts).

Radicular Odontomes.—These arise after the crown of the tooth has been completed and while the roots are still in the process of formation. The tumor consists of dentine and osteo-dentine in varying proportions; when the former tissue preponderates it is called a radicular dentoma; when the latter is in excess, a radicular osteo-dentoma. In Salter's well-known specimen, in section, the outer layer of the tumor is composed of cementum, within which is a layer of dentine incomplete below. The central part is formed of calcified tooth-pulp and contains a confused mass of bone and dentine. Radicular odontomes are rare in man, but are common in other mammals, especially rodents. They are often multiple. They frequently lead to suppuration.

Symptoms.—The symptoms of this and of other varieties of hard odontomes are so misleading that, according to Bland Sutton, up to the present time no case has been correctly diagnosed before the removal of the tumor; most often they have been mistaken for exostosis, for necrosis, or for unerupted teeth. The treatment consists in removing the tumor, scraping out the cavity and allowing it to granulate up.

Cementomes.—When the capsule of a tooth-follicle becomes greatly thickened and ossified, the contained tooth comes to be embedded in, or attached to, a mass of cementum. Cementomata occur most frequently in horses, and may attain a large size, one specimen weighing seventy ounces.

Fibrous Odontomes.—A fibrous odontome consists of a tooth enclosed within a greatly thickened tooth-sac. The latter is so thick that it prevents the tooth from erupting. Fibrous odontomes are commonest in ruminants, especially goats. They are often multiple. According to Bland Sutton, the thickening of the tooth-capsule is due to rickets. They have usually been mistaken for fibrous or myeloid tumors.

Follicular Odontomes (Dentigerous Cysts).—They are more

often met with in the mandible than in the maxilla. The cyst wall is composed of a thickened and expanded dental sac, and usually contains calcareous or osseous matter. The fluid inside the cyst is usually clear and watery, but may be viscid, sanious or gelatinous; sometimes, though rarely, the cyst contains a thick, putty-like material composed of degenerated epithelial cells. Sometimes no trace of a tooth is found inside the cyst, the process of expansion having taken place at so early a period that the dental papilla has become absorbed before it has had time to form any dental structure. The great majority of follicular cysts contain some portion of a tooth. The tooth may be complete and may be free in the cyst, but it is usually implanted in the cyst wall, with its crown projecting into the cavity, the roots being truncated or imperfectly developed. Occasionally the tooth is inverted. Follicular cysts are almost invariably in connection with the permanent teeth, especially the molars. One specimen contained the crown of the second molar tooth, and was removed from the mandible of a boy eleven years old. Occasionally the encysted tooth is a temporary or even a supernumerary one. There is some difference of opinion as to the exact manner in which a dental follicle becomes distended to form a dentigerous cyst. All observers agree that the fluid collects between the tooth and the follicular wall. Broca attributes the presence of this fluid to morbid degeneration of the cells of the enamel organ. Malassez attributes it to hypertrophy of these same epithelial cells. According to Tomes, a small quantity of fluid is normally formed between a tooth and its sac, and is discharged when the tooth is cut; any cause impeding the eruption of the tooth leads to excessive accumulation of this fluid. According to Alberran, this impediment to eruption is most often furnished by a blocked condition of the *iter dentis*.

Symptoms.—Follicular cysts are most frequently seen in the mandibles of young people. They form slowly-growing tumors which expand the plates of the bone. Whilst they are still small and are covered by a thick layer of osseous tissue, they feel solid and may easily be mistaken for solid tumors; but sooner or later the bony wall becomes so attenuated that it can be indented by the finger; they are then easily recognized as cystic swellings. Usually the swelling is more or less hemispherical and projects

from the surface of the jaw, but in some cases the whole body of the bone may be evenly expanded in all directions. An examination of the mouth will often show that there is a permanent tooth missing, but too much reliance must not be placed on this deficiency. The tooth may have been removed or it may be absent as the result of individual peculiarity; on the other hand, the number of teeth in the mouth may be correct and the cyst may contain a supernumerary tooth or one not usually cut until a later age. In many cases a diagnosis is not possible until an exploratory incision has been made. Such incisions should not be made unless the surgeon is prepared to complete the necessary treatment at the same sitting, especially when the cyst is a large one, for the contents are very likely to become septic and give rise to a great deal of trouble. Follicular cysts very rarely suppurate unless they have been interfered with. When these cysts occur in the maxilla they very often project into the antrum, and may be indistinguishable from other cystic swellings in this situation until they have been opened.

Treatment.—The necessary incision can nearly always be made from within the mouth, but in large or awkwardly placed cysts it may be necessary to make the incision from without. The cyst must be freely opened by removing a portion of the cyst wall. The contained tooth and the lining membrane must be removed. The expanded walls may then be squeezed in so as to diminish the size of the cavity. The latter must be filled with an antiseptic dressing which must be renewed every day and the cavity syringed out with a weak antiseptic solution.

Compound Follicular Odontomes.—According to Bland Sutton, this odontome results from sporadic ossification of a thickened follicular wall, and contains a number of small teeth or denticles composed of cementum or dentine, or even cementum, dentine and enamel. The following case recorded by Tellander may be quoted as illustrating this variety of tumour. The patient was a woman aged twenty-seven years. "The right upper first molar, bicuspid, and canine of the permanent set had not erupted, but the spots where these teeth should have been was occupied by a hard, painless enlargement, which the patient had noticed since the age of twelve years. Subsequently this swelling was found to contain minute teeth. There were nine single teeth, each one per-

fect in itself, having a conical root with a conical crown tipped with enamel, also six masses built up of adherent single teeth. The denticles presented the usual characters of supernumerary teeth." (Sutton).

Composite Odontomes.—These tumors consist of a disordered conglomeration of enamel, dentine and cementum, and arise from an abnormal growth of all the elements of a tooth-germ, viz.—enamel-organ, papilla and dental-sac; often two or more tooth-germs are fused indiscriminately. They differ from the compound follicular odontomes in that the various parts of the teeth composing the mass are indistinguishably mixed instead of forming separate denticles. Forget's well-known specimen is usually regarded as an odontome of this kind. It was removed from a man twenty years old, in whose lower jaw it had been growing since he was five years old. It formed a round, smooth, hard tumor occupying nearly the whole of the left side of the mandible; all the teeth behind the first bicuspid were absent. When the portion of jaw was removed, it was seen to be converted into a cavity occupied by a hard oval substance the size of an egg, composed of an irregular mass of enamel, dentine and cementum. The affected tooth germs were supposed to be the last two molars.

The Pacific Stomatological Gazette for November, 1895.

"ELECTRICAL ACTION BETWEEN METAL FILLINGS," by J. L. Asay, M. D., San Jose, Cal.; read before the Stomatological Club of Calif., Oct. 1, 1895. A year or more ago it occurred to me that there could be a telephonic communication induced by the two electrodes consisting, respectively, of gold and amalgam in the presence of moisture by the closing and breaking of the electrical circuit. Repeated tests under various conditions have confirmed this opinion. An electrical current existing between different metals in the same mouth is capable of being demonstrated by a little apparatus which I have had made. It consists of a receiver of the ordinary telephone, with conducting cords of about five feet in length. To the end of each is attached an ordinary excavator with the point tapered and bent at an obtuse angle (the latter for convenience only in reaching a filling). These excavators serving as terminals, one is brought in contact with an amalgam filling, the other with one of gold, when the

sound produced by the current can be distinctly heard through the receiver at the ear.

An illustration of the sound thus produced can be given by connecting the instrument with the poles of a dry cell or battery, when the distinct "click," "click," as the circuit is closed and opened, is plainly audible to any one, even if somewhat hard of hearing. In the demonstration in the mouth, however, the current not being so strong as in a battery or cell, this volume of sound is greatly modified and often requires acuteness to hear it. The insulation of fillings by oxy-phosphates, or other non-conducting materials, still further reduces the current and diminishes the volume of sound, if not being entirely prohibitive of electrical action.

There is a difference of opinion among electricians with whom I have conversed regarding the existence of electrical action between gold and amalgam fillings when the two metals are joined. Some assert that no current can be found under such condition; others, that it is a mere short circuiting of a battery. In the voltaic pile we say there can be no electrical action set up where the plates are in close contact, and that there must be an interval of space between the plates filled with an acidulated fluid in order to induce a circuit. What really does happen when gold is built upon an amalgam filling I am not prepared to assert, owing to this diversity of opinion among those who are more conversant with this science than myself. I would suggest one fact, however, that one or more surfaces of both metals, as usually placed in the mouth, are continually bathed in the oral fluids.

In years past and, also, lately, I have had occasion to make many of these so-called combination fillings, and my experience has been and is, that when I have made a gold filling with all the care and detail possible for myself upon a cervical foundation of amalgam, I have invariably found, in a year or more afterward, the gold roughened and softened at the line of junction with the baser metal, although such margin was absolutely solid and nicely finished at the completion of the filling.

"SURGICAL TREATMENT OF ULCERATED TEETH," by J. G. Parsons, D. D. S., San Diego, Cal.; read before the Calif. State Ass'n., July, 1895. My experience in the heroic treatment of these

abscesses is firmly convincing of its efficacy and utility, not only as a speedy, but as an almost absolutely exact method of curing the trouble, whenever it occurs within a reasonably accessible portion of the jaw. Where the trouble is in its incipient stage it may be aborted by the drainage system mentioned herein. After treating the tissues with cocaine, hypodermically, incision is made with a sharp bistoury, and the outer plate perforated with a bur. In case there is a fistula which is not accessible to convenient treatment, make a direct lateral tract to the apical space. The opening should be sufficiently large to admit all necessary instruments, and care should be exercised to avoid penetrating the maxillary sinus, when the trouble is in the superior bicuspids and buccal roots of the superior molars, as by so doing the complications of the treatment are increased. After thoroughly washing the diseased parts with a three-per-cent. solution of pyrozone, explore for necrosed bone, more or less of which usually exists. This bone is removed with a spoon-shaped excavator, as well as all irregularities at the root of the tooth due to absorption. A 15 to 50 per cent. solution of aromatic sulphuric acid, the strength to be determined by the necessities of the case, is then injected. The excavation and wound are then packed with antiseptic cotton to keep the tract open. This treatment is continued until all the necrosed bone is dissolved and healthy conditions obtained. It is desirable, as a matter of safety, to continue this treatment even for a few days after normal conditions appear to be restored at the seat of disease, the ordinary period of treatment being two to three weeks, although, if the abscess is treated in the early stages, one or two treatments, after the excavation, are sometimes sufficient where the excellent health of the patient favors speedy recuperation. Better do this than allow the opening to close too rapidly and thus increase possibilities of the recurrence of the abscess, especially in a case where a root supporting a crown or a piece of bridge-work has begun to absorb.

The thorough sterilization of the instruments is a prime necessity to the successful accomplishment of this operation. Flat, wide, inferior jaws increase the difficulty of thus treating an abscess. Gravity is also another obstacle met with. Although the treatment is heroic it can, in most cases, be made almost painless by the use of cocaine, and my belief is that so decidedly

exact and efficacious is this treatment that, if demanded, the dentist would be warranted in using chloroform or ether. The advantages of this treatment are that the element of guess-work is almost entirely eliminated from the operation. Possibilities of boring through the side of a tooth-root, which are present when treating an abscess by an excavation through the tooth itself, are avoided. Discoloration of the tooth—a common trouble in abscess treatment through the tooth—does not occur in the operation suggested. Root-filling may be performed at any time after beginning the operation. And most advantageous of all is the tendency of the heroic treatment to prevent a recurrence. When properly performed, this operation is an almost absolute guarantee against a recurrence of the abscess.

Discussion. *Dr. Younger.* A good many years ago I introduced lactic acid, for the reason that I found it to be a most excellent absorber of lime, and it did not act upon the soft tissues. Sulphuric acid acts alike upon the soft and hard tissues—the healthy as well as the diseased. Lactic acid has this superiority over sulphuric acid, that it does not act upon the soft tissues except to stimulate. I use it not only when I want to dissolve for necrosed bone, but also as a solvent of tartar in pyorrhea. I found that in that operation its effect upon the soft tissue is to stimulate granulations and reunite the gum tissue with the tooth, something that sulphuric acid cannot do. I think in the course of a few years sulphuric acid will pass out of the sphere of the stomatologist.

The Dental Register for November, 1895.

"DENTISTRY IN BRAZIL," by Thos. B. Mercer, D. D. S., Minneapolis. The climate, an all-important factor to the foreigner, is, of course, distinctly tropical, accompanied by that lavish display of vegetation characteristic of the tropics—becoming in the lowlands a perfect net-work of palms, mosses, grasses, etc., luxuriant beyond description. The summer season, from about December 1st to April, is extremely hot, and as the large cities are all seaport towns (with the exception of Sao Paulo), low and damp, they become veritable incubators for low-fever germs which, to the unacclimated new-comer, are often fatal, but in other seasons it is often pleasant indeed, and until the novelty wears off, is really quite ideal.

The people, a mixture of the Portuguese, African negro and native Indian, are an olive complexioned, rather slight people—the better class are pleasant to meet and quite cordial, but inclined to be hypercritical. Their government is at present a very unstable affair, which is detrimental to money exchange and cripples the country. For admittance to practice dentistry in your own name, an examination in the Portuguese language before the Medical Board of Rio de Janeiro must be taken which, by the way, is very severe, but by being in the employ of or using the name of someone licensed, you are not interfered with.

Practically all of the representative dentists are North Americans, who employ from three to five more, but there are some native practitioners who come to "the States" for their course, then return. Prices being high, the work among these representatives is of a very superior quality and conscientiously done. Their offices are fully equipped with all late appliances, but there are native dentists who are about as numerous as barbers, and who, with few exceptions, maintain about the same degree of dignity. Their outfit would include little more than forceps, amalgam, a spatula and arsenic. They use the latter about as freely as we would dental plaster—from an obtundent in a simple cavity to an exposure. The pulp is never removed, so when pulpitis or an abscess develops it is extracted, or they "save up their money" and apply to a "dentista Americana," whose appointment book usually has a dozen or more cases bearing evidence of the skill (?) of these native operators. Outside of the office the life is hardly as agreeable as most of us would wish, as for the first year you are handicapped by the language, and after you have mastered that after a fashion and feel that you would like to become acquainted and mingle somewhat in the society that is afforded, you are confronted with the fact that, humiliating as it may seem, a dentist holds an inferior position. This also holds good among the British residents. But grant that you gain the dental *entree*, you soon find their ways and what is expected of you so different from what you are accustomed to, that you are pleased to let it alone and return to your dental friends once more, where, with the exception of a dinner or an excursion "up country" now and then, you experience the steady routine of work, eat and sleep.

The Ohio Dental Journal for November, 1895.

"THE USE OF ELECTRICITY IN THE TREATMENT OF HEMORRHAGE," by M. G. Jenison, M. D., D. D. S., Minneapolis, Minn. The usual causes of non-coagulation of the blood, or failure of the blood vessels to contract, are too well known to require elaboration. When a hemorrhage results from the extraction of teeth, the usual trouble does not always appear until after the patient has left the office, the bleeding often at the time being very slight. This is probably due to some compression of the surrounding parts in the removal of the tooth. The bleeding appears some time later with various degrees of persistency and profuseness. If the patient does what is proper and calls for attention, which should be given by the dentist, the trouble is usually easy to relieve. But where this is not done, the result is uncertain, except in one respect, and that is that the dentist is unjustly criticised. The customary remedies consist of astringent washes, applications of tannin, gallic acid, persulfate of iron, etc., and sometimes compresses held firmly in place until the bleeding ceases. But in the treatment of hemorrhage, as in a great many other conditions, you are sure to find exceptions, for there are cases where none of these standard remedies will check the flow of blood. It is in these exceptional cases that I believe electricity can always be relied upon. Apply the positive pole directly to wound, having the metal point of such shape that it will come in contact with as much of the injured surface as possible. Then turn on the current gradually until thorough coagulation, but not cauterization, is produced. By this means I have obtained perfect relief in cases where no effect whatever was produced by the usual remedies, including compressing.

The Dominion Dental Journal for November, 1895.

"CARIES OF JAW FROM IMPACTED WISDOM TOOTH," by R. E. Sparks, Kingston, Ont. E. L——, aged about 27, was admitted to Kingston General Hospital June 12th, 1895. He had a large swelling at the angle of the lower jaw, left side. I was asked by the attending surgeon to see the case. We found a slight discharge from a small opening opposite the angle of the jaw. He could not open the mouth more than a quarter of an inch at the incisors. With a distender we forced the mouth open to about

half an inch. We found teeth good, but wisdom tooth impacted. The history of the case as he gave it to us was, that about March 1st he felt gnawing pains in the region of the angle of the jaw. These became more intense, passing over the side of the head. About the middle of April the jaw swelled and by May 1st was locked. Consulted a dentist, who diagnosed an impacted wisdom tooth, but said he could not extract it until the swelling disappeared. He visited a doctor, who recommended poulticing. This was done for a week, when the swelling "broke" and the muscles relaxed, allowing him to open his mouth pretty freely. Exposure to cold brought on a relapse. Jaw again became swollen and locked. He again consulted his doctor, who at once sent him to the hospital. On June 14th an anæsthetic was administered and an exploratory incision was made from the angle of the jaw forward almost to the facial artery. It was found that caries had attacked the jaw opposite the wisdom tooth. This was thoroughly scraped and washed out. The mouth was pried open and the second and third molars removed; the second merely to admit of the removal of the third. It was found that a channel existed from the socket of the wisdom tooth to the external opening just made. The wound was stitched, leaving a drainage tube in. He was dismissed on July 5th. We saw him on August 31st. Swelling entirely disappeared; mouth opened quite freely; scar very slightly noticeable. Altogether a very satisfactory result.

The Dental Review for November, 1895.

"THE ADVANTAGES OF ELECTRICITY IN A DENTAL PRACTICE," by Geo. J. Dennis, M. D., D. D. S., Chicago; read before the Odontographic Society. First is its advantage as a motive force. Applied as it is by means of the various forms of motor at present on the market, it has become the most valuable of all the applications of this force. The motor is rapidly taking the place of the old dental engine with its foot treadle, and bids fair to supplant it entirely. This will not occur altogether until more extensive distribution of electricity from central power stations is brought about. Its use at present is somewhat limited, not because its economy of personal injury is not appreciated, but because the source of power is not always a convenient one; the method of distribution may not be applicable to the needs of the dentist, or

the central station may be lacking altogether. The advantages of electricity applied as a motive force are in a measure evident even to one who has had no personal experience with it, but only one who has had the service of this agent can fully understand or fully appreciate its effectiveness as a pain-, time- and labor- saving device.

In the laboratory the motor is equally efficient. Its reduction of the work of the dentist here is almost marvelous, and it is not necessary to dwell upon an advantage so easily observed. In driving a fan during the summer months, either for the purpose of creating a light draught of air over patient and operator, or for transforming the air and reducing the temperature of an entire suite of rooms, its efficiency cannot be too highly commended.

Converted into heat, by means of resisting materials, a wide field of usefulness is opened up, and one as yet not fully occupied. The electro-cautery, which was one of the earliest applications of this force as a heat producer, for removing hypertrophied tissues and for arresting hæmorrhage about the mouth, was quickly recognized as a valuable adjunct to the dentist's cabinet. The root canal drier came next, and because of its small size and lack of bulk, together with the rapidity of its action in producing the amount of heat necessary for the work, soon became indispensable. A comparatively new instrument, the hot-air syringe, electrically heated at the tip in the manner of the root canal drier, still further increases the usefulness of this agent.

An annealing tray, dispensing with the alcohol or gas flame, may be added to the list. Its advantage consists in the absence of gases usually attendant upon the old methods of heating the gold, by many deemed very injurious. Applied as in the electric furnace, for the fusing of porcelain, the advantage of this method and this force over old methods and forces is overwhelming. The absence of heat outside of the furnace itself, the absence of dirt, the saving of time, the small space occupied, freedom from accidents, greater certainty of perfect results—all these are revolutionizing the methods of this branch of our work.

As a source of light, as a substitute for sunlight on dark and foggy days, its convenience when properly arranged exceeds anything presented to us thus far. Applied within the mouth by means of a one, two or three candle power lamp, its assistance in

the discovery of cavities, in the diagnosis of congested or gangrenous pulps or of diseased tissue, whether of the soft parts or of the bony structures, requires no assertion.

As a therapeutic agent its value is little known as yet. It has been suggested that drugs might be readily decomposed in the pockets, about the necks of teeth affected with pyorrhœa, thus obtaining the medicament in its nascent state. A prominent dentist of this city has employed the galvanic and faradic currents in the treatment of chronic alveolar abscess, with irritation of the alveolar process. Success was reported, at the time, but whether a permanent cure resulted your essayist is not able to state.

"DENTAL PYORRHŒA AND CARE OF THE TEETH," by J. P. Carmichael, D. D. S., Milwaukee, Wis.; read before the Northern Ill. Dental Society. Aside from the pleasing appearance that a well-kept mouth presents, it is the means of securing the healthfulness thereof that we are to consider. Teeth should be kept clean, and if we can persuade people to take proper care of their mouths, we are doing a wholesome service to them and their immediate friends, as well as a kindness to all those who come within conversing distance of their breaths.

With the great advance made in mechanical dentistry, there is no excuse for anyone to lack the means to masticate his food. Where the gums are healthy and the teeth worn or broken off at the margin, the skill reached in mechanical dentistry enables us by crown and bridge-work to build a set of teeth on the old roots which in many cases may be more serviceable than the original teeth, besides presenting a better appearance. But it is of disease of the soft tissues that I am particularly to speak. It is safe to assert that more teeth are lost in consequence of diseases in the tissues about the teeth, than from actual decay of the teeth themselves. There are two principal causes from which disease of the soft tissues arises: First, sheer neglect in allowing tartar and filthy accumulations to remain between and about the teeth, until by the crowding with fermentations and decomposition of these accretions, local disease is set up and the gums recede from their attachment. The delicate membrane surrounding the teeth, and on which they partly depend for nutriment, becomes involved, the teeth loosen and fall out, or from the annoyance they

cause, the patient wishes them removed. We should impress upon the mind of the patient the fact that in most cases of this kind, with proper attention and perseverance these teeth can be saved and will certainly be of more service than artificial ones. I have frequently noted that a large number of middle-aged persons insist on having plate work, because of loosened teeth from the causes above referred to. In the treatment of local disease I instruct my patients not to use tooth-powder of any kind. Liquid applications of some antiseptic is preferable, as the powder gets between the gums and the teeth and, remaining there, prevents the healthy adhesion. I consider the application of pure cold water after each meal excellent treatment for the gums, with thorough brushing as a stimulant, for friction is often necessary to produce healthy action.

Pyorrhœa Alveolaris has received considerable attention from dentists during the last year or two and I wish to impress upon the members of the convention the fact of its contagiousness and its constitutional character. I would here remark that the term pyorrhœa alveolaris is perhaps plain enough to the initiated, but when we make such diagnosis and fire the term at the unfortunate troubled with it, it is well calculated to shock the confiding patient to such an extent as to give him an acute though temporary attack of exophthalmic goitre. The patient in alarm is likely to ask if there is a ghost of a chance for him to live long enough to make his will? He thinks that if he has got pyorrhœa alveolaris and got it in his oral cavity too, with hyperacidity of the oral fluids combined with the "uric acid diathesis," and that it requires a learned "stomatologist" to just hump himself to make the slightest impression on the pathological peculiarities of his case, the jig is up for him, and there is no use of his trying to live another minute. It seems to me that when we find that the membrane covering a tooth or teeth is discharging pus and the case does not yield readily to the local application of the ordinary germ destroyers, we should send the patient to a competent physician. The case is no longer a local trouble; it is a constitutional one manifesting itself locally. The probability is that the patient is not well nourished. The white corpuscles of the blood, the scavengers of the body, are not sufficient in numbers, nor the red ones healthy. In obstinate cases there is probably an inherited

taint of so-called scrofula in the blood as a predisposing factor, and bad digestion and bad assimilation of food as the primary exciting cause. It requires only a lowered vitality, impoverished blood with contagious exposure to set up the disease. The teeth affected feel longer than the others, disagreeable matter is discharging from the gums, which seem to shrink away, the teeth loosen and fall out or may be easily removed with the fingers, although the teeth themselves are sound. My experience leads me to say that we should impress upon the patient the truth that the disease is contagious. Eating and drinking utensils used by one should not be used by another before being thoroughly cleansed, and the practice of kissing also should not be indulged in by those having the disease. If applications of aromatic sulphuric acid or borolyptol brought very thoroughly in contact with every part of the investing membrane does not abate the disease in a week or so, the patient requires constitutional treatment, beginning with the intestinal tract first, and afterward with tonics or antiscorbutic remedies as may be indicated. The uric acid complication, claimed by some as the cause, is a mere coincidence and due to maldigestion. Of course, where we have a gouty or rheumatic inheritance in the patient, the uric acid will nearly always be present, but cannot be regarded as a cause of pyorrhœa alveolaris.

The Dental Cosmos for November, 1895.

"A CASE OF PERSISTENT FACIAL NEURALGIA DUE TO ENAMEL-NODULES," by Louis Ottofy, D. D. S., Chicago. Mr. L. E. M., aged 30, an attorney by profession, suffered from intermittent neuralgia for several years. No improvement was noted either under the care of his physician or his dentist. All of the teeth were carefully examined, suspicious fillings removed, and all cavities filled, without any appreciable reduction of the pain. Finally the superior left third molar, which had a pin-head filling on the occlusal surface, became sore, and all indications warranted the belief that an alveolar abscess was in the course of formation. The filling was removed and an attempt made to encroach upon the pulp. During this procedure it became evident that the pulp was still alive. Having encroached upon it, nothing remained to be done but to devitalize it. This was done, the root-canals were

cleansed and filled (unsatisfactorily to me); the cavity was filled with a plastic. For a brief period the pain did not seem so intense, nor were the paroxysms as frequent; but within three months there was no perceptible difference between the conditions prior and subsequent to the devitalization of the pulp. The period from the first introduction of the small filling upon the occlusal surface, until the time of the extraction of the tooth, extended from December, 1890, to July, 1892. Upon examining the specimen it was found to contain a large enamel-nodule at the intersection of the irregularly-disposed roots, on the surface which in the mouth corresponded with the mesial.

Within a few months after the removal of this tooth similar symptoms appeared on the right side of the face, which until this time had been perfectly free from pain. But the pain was not so frequent, neither was it as intense as on the left side, and the patient did not feel disposed to have anything done with it except its removal, and that not until it was absolutely necessary. In May, 1895, the pain increased in intensity, and the paroxysms in frequency. The right upper third molar was the one suspected, and I suggested an examination of the condition of the roots as far as possible. The soft tissues were laid open on the distal surface of the tooth, and the wound tightly plugged with cotton and iodoform. After several days of repeated application, a portion of the process was cut away with a bur, and the enamel-nodule, situated on the posterior surface, was noticeable. The tooth was extracted June 8, 1895, and an examination of the specimen showed the presence of two nodules; and on that surface which occupied a mesial position in the mouth there was imbedded what seemed to be another tooth.

Since the extraction of this tooth the patient has been perfectly free from pain.

WHAT THE TONGUE INDICATES.—A white tongue denotes a febrile disturbance; a brown, moist tongue—indigestion; a brown, dry tongue—depression, blood poisoning, typhoid fever; a red, moist tongue—inflammatory fever; a red, glazed tongue—general fever, loss of digestion; a tremulous, moist and flabby tongue—feebleness, nervousness; a glazed tongue with blue appearance—tertiary syphilis.—*Medical Age*.

Letters.

. LET EACH ONE HAVE HIS SAY.

PHILADELPHIA, Dec. 2, 1895.

DEAR DOCTOR:—Seeing in the Nov. DIGEST the letters from members of the Protective Ass'n., and having read some letters in previous numbers, I think that perhaps it may be quite the thing for each member of the Ass'n. to have his say, and that perhaps I might have mine.

With the D. P. A. I am quite satisfied. The dealings I have had with the D. P. Supply Co. have been perfectly satisfactory in all respects. Regarding the DIGEST—I take nine dental journals, and read as many more as I can get hold of, so may perhaps be permitted to pass judgment upon it. This I do by enclosing check for next year's subscription, and by assuring you that I have taken and shall take pleasure in recommending it to my professional friends.

Yours respectfully,

WM. H. TRUEMAN.

COBLESKILL, N. Y., Dec. 15, 1895.

DEAR DR. CROUSE:—I wish to state that I am greatly pleased with the work of the Protective Ass'n. I joined over three years ago, and since then the Ass'n. has saved me over two hundred dollars. And I am sure it would do as well for all the profession if they would co-operate. In the last six months the Dental Protective Supply Co. has saved me much more than my membership fee. Hence my reason for believing that the dentists ought to become members of the D. P. A. and pull together against the patent men and high prices. My brother practitioners, join the Protective Ass'n. and you will never regret it.

I send herewith my subscription for the '96 DIGEST. I would not like to be without it; it is just the journal for the busy practitioner.

Yours truly,

HOWARD H. FOX.

NEW YORK, Dec. 14, 1895.

DEAR DR. CROUSE:—I am ashamed of our fraternity, that so many are willing to allow so few to purchase immunity for all—

nothing noble about that. I think you had better assess us. I am not a young man and am doing comparatively little dentistry—certainly infringing no patent claims—but I am one of the brotherhood of dentists, and their interests are mine, and

Yours,

J. S. LATIMER.

CHICAGO, Dec. 10, 1895.

DEAR DR. CROUSE:—I am simply disgusted with the two letters published in last DIGEST. Let me give you my experience. Before joining the Association I had paid the Tooth Crown Co. something over \$80, and had papers made out for nearly \$200, and had written them that I would send it at once. I received circulars in regard to the Protective Ass'n., I joined, and when the Crown Co. wrote asking why I had not sent money as agreed, I told them I had joined the Ass'n. I have never heard from them since, and I have no certificate of membership printed in red ink hanging in my office either. Thankfully yours, F. H. BOWMAN.

SAUK CENTRE, MINN., Dec. 5, 1895.

DEAR DR. CROUSE:—I wish you to know that your unselfish efforts to benefit the dental profession are highly appreciated by me, and I am ashamed that I have not written you to this effect before. I don't know how much longer I would have remained silent had it not been for the unkind letters in the Nov. DIGEST. Words fail to express the contempt I have for the men who can be so ungrateful as to pen such letters, and I think every member of the profession ought to cry "shame!" at the exhibition of such base ingratitude. Both of these fellows evidently joined the D. P. A. from a selfish motive, and now that the Ass'n. has so effectually cut off the patent "blood-suckers" that not even a threatening circular has been issued by them for over five years, these ingrates give way to their selfish natures and kick because they put in their \$10 when they might have kept them in their pockets and received the benefits of the movement just the same.

Every dentist in the United States is your beneficiary and you deserve the commendation of every one instead of such insulting letters as these two. I have been a member of the D. P. A. almost since the first, and \$10 is all I have been asked to contribute. I consider this amount a mere trifle compared with the benefits re-

ceived from a financial standpoint, to say nothing of the sense of security I have enjoyed, feeling that the Ass'n. protected me from *all unjust claims* of the patent sharks.

You have fought this great evil almost single-handed, and now that you have so well conquered it, surely we, your fellow practitioners, owe you not only praise, but our hearty co-operation in your further efforts to benefit the profession.

Gratefully yours,

E. C. RICH.

NEW YORK LETTER.

NEW YORK, Dec. 15, 1895.

To the Editor of the Digest,

MR. EDITOR:—'How to educate the public,' was, we think, well answered in the *New York Herald* not long ago by giving several cuts and an article, both doubtless copied from a dental journal, on correcting deformities of facial expression. The author's name was omitted. Another item told New Yorkers that the tendency of dental practice was down-town in the business centres, adding that the Chicago dentists had centralized in the heart of their city. It is true that there are a few practitioners in the down-town portion of New York, but only a few, and the geographical situation of Manhattan Island precludes the probability of anything like a radical change. There is a decided change taking place as regards the occupation of apartment houses by dentists; many are now domiciled in them, having fitted up some of the finest offices in town.

Dr. Goddard, of California, was at the November meeting of the 1st District Society, and we invited him to witness a novel operation by the veteran Dr. Clowes. We will give a description of it in the near future. The dental department of California is in good luck; \$250,000 endowment by the State, and the Mayor of San Francisco has donated enough land for new buildings, together with the University.

Dr. Stowell, of Pittsfield, Mass., edified the November meeting of the 1st District by a paper, "Prevention vs. Cure." Diet was emphasized, but there was something greater than diet—assimilation. We think there is something greater than either, viz.—nor-

mality of the nervous organization. The best we can do with this last is experiment, as we are under limitations.

The meeting of last month was the joint one of the Stomatological of Philadelphia, and the Odontological, introducing to Society, Dr. Darby Jr., son of the honored professor of the University of Penn. The paper was very interesting, the "new thing" about erosion is that uric acid causes it. Dr. Shepard says cleanliness will prevent many cases of pyorrhea alveolaris; Boston does not go it a bit on uric acid. There were twenty-one visitors from Philadelphia; it looked like a red letter night. A marked feature of attraction was the gift of a large selection of choicely made dental instruments. They were donated to the Society by the daughter of the late Dr. Harvey Elliott, and will soon be on exhibition in the cases of the meeting-room.

In the November number of the *Review* we note Dr. Ottofy's paper relative to the spreading qualities of gold under the pressure of round or oval surfaces. We have found that for many simple operations there is too much physical and nervous energy expended, both by the patient and operator. Many simple fillings can be well made with much less work, and this is due to both parties. In the enthusiasm for "our methods" of practice we are sincere, but wisdom and judgment at last come to be the greatest factors in saving teeth in the easiest manner. We wish to emphasize the fact that when we are able to fill with less pain there will not be so much demand for extraction. We are sure that so much machinery is responsible for much of the intense suffering that is needlessly caused; delicacy is overlooked far too much.

A friend has told us of a secret in journalism. He has an acquaintance whose business is the publishing of a popular magazine, and he tells him that he has an income of \$40,000 from advertisements alone. We are more strongly impressed by this information than ever that there is a field in dental journalism that has never been cultivated. We are living in an age when every calling should come into touch with this busy world. A combination of subjects is needed; instead of having four subjects treated in four different journals, put them into one and give a variety of literary productions. In our own profession we have pleasing writers on various subjects. Not many years since one of Montreal's practitioners of dentistry gave some exceedingly in-

interesting and artistic articles, well illustrated, for the *Century*; our late Prof. Garretson could have written for a journal of this character; Dr. Johnson, of Chicago, has acquired fame in this line; Dr. Ottofy has talent; Dr. Ottolengui has no little celebrity from his quaint writings. Would that someone could have the courage to proceed on the line of a "Variety Dental Journal," made up of the combinations named and interspersed with articles in plain language on dental subjects, showing by illustrations any and all operations of progress. The interests of value that would be acquired would be beyond calculation. The public would not be compelled to depend upon "Parlor" dental advertisements for so-called improvements, but they should know the truth from reputable sources. The independence that a journal of this character could assume, without fear of contradiction, would be beyond anything before attempted. The field of subjects for illustrating is unlimited. Such a journal would find a place among the public along all the lines of travel and would not be excluded as technical. An economical, variety, illustrated journal is a thing of the future. Twenty thousand dentists in this country at ten cents is no small income, to say nothing of the reasonable probability that the public would be an additional income. Behind all this is an income from an immense variety of advertisements needed more or less by the public and the dental practitioners.

Is this possible? Rumor has it that a graduate syndicate of reputable practitioners are to offer an opportunity for the much-gulled public to have "legitimate" dentistry at low rates; these reputable practitioners to be unknown, but to share the "spoils". Low rates for honest work are much needed in all cities and towns. We are not sure but a move could be made in the direction spoken of by employing earnest and promising young practitioners, for too many are caught up by the proprietors in many of these increasing dental parlors. Possibly some of this class of young practitioners could be much encouraged by being put into an office supported by able men (incognito). They too often feel compelled to accept offers of an objectionable kind. The problem of meeting the limited in means by honest service is very sparsely met by dental colleges, if half the reports are true.

We are led to emphasize the editorial in the November DIGEST relative to the letters of adverse criticism—Dr. Crouse has too

many true friends in this vicinity to notice such communications as are found in the November number of the *DIGEST*. Such men need to take journals that they may be posted in the price-lists of the market, and concerning what is taking place.

There was an interesting time this month in Dr. Phillips' office at a clinic presided over by Dr. Gillette, of Newport, and all about cataphoresis. Perhaps my readers will be curious to know what this cataphoresis is in New York for. Well, it is here to prove that dentistry can be practiced painlessly. Dr. Gillette showed that he took it last April, and he said that it can be done right along in from seven to thirty minutes. The most enthusiastic speaker of the evening was one who had it applied. It took about fifteen minutes, and during that time it felt as if cold air was blowing into the cavity. When enough time had elapsed, Dr. Rhein, being somewhat skeptical, proceeded to excavate vigorously, but it felt simply like cutting a finger-nail and did not hurt at all. Great applause followed. However, simplicity is demanded for practical dealing with sensitive dentine, and in this new wrinkle it is not attained.

A Williamsburg dentist claims great success in the use of 70 per cent. sulphuric acid. We have used it successfully in a large number of cases with a vascular structure, but in the denser it often causes too much pain without lessening the sensitiveness. So far as the cleansing effects of the acid are concerned, by the use of carbonate of soda all its bad effects are eradicated.

We once told an electrician that when the Yankees hurt a finger they pounded it to stop the pain. "That is it," he said, "that is what electricity does." These experiments we have referred to were in connection with cocaine. Is it the cocaine that makes the operation painless? Dr. Phillips says it is a mechanical effect. It looks to us like a molecular activity which is mechanical in its effects.

The question of free service by dental schools is exciting the thought of many, and it is a subject which affects the profession as a whole, for in common with other humanitarian callings, we are all alike in our relations to the poor. Until there is found a solution of the vexed problem, the greater part of gratuitous service will continue to be dispersed by the generous hearted, and in this connection we wish to say that we never met anyone who

was so unselfish in this respect as the late Dr. W. H. Atkinson.

We notice a disposition to criticise the methods of other journals because they seek to entertain by gossip, etc. The author of these remarks should remember that variety is the spice of life—all do not like the same kind of reading, and some may enjoy a letter.

Dr. Johnson's method of placing proximal fillings in incisors, as shown in the *Review*, is good and we heartily commend it, having successfully practiced it for many years, using convex-faced, smooth fillers and heavy gold.

Yours,

M. A. G.

FEAR IN CHLOROFORM NARCOSIS.—I am inclined to put down fear as one of the most determinate causes of fatality from chloroform. I know of several instances in which it was impossible that chloroform, *minus* fear, could have been the direct cause of death, because sufficient of it was not administered to produce death.—*Richardson*.

DROPS.—Dr. Eder, in the following, gives the number of drops required to make a cubic centimeter, showing the variations in the size of drops of different liquids: Water, 20; Hydrochloric acid, 20; Nitric acid, 27; Sulphuric acid, 28; Acetic acid, 38; Castor oil, 44; Olive oil, 47; Oil of turpentine, 55; Alcohol, 62; Ether, 83.—*Scientific American*.

GUAIACOL AS A LOCAL ANÆSTHETIC.—The value of guaiacol as a local anæsthetic has recently been brought under notice by Dr. Lucas-Championniere, in a paper read before the Academy of Medicine in Paris. The anæsthetic properties of guaiacol seem to have been first noticed by Andre, a pharmacist of Paris. The guaiacol was used in solution in olive oil, in the proportion of 1 in 10 and 1 in 20, a syringe-ful of the former strength containing 10, and the latter 5 centigrams of guaiacol. The injections were first tried for the extraction of teeth, and with the result that perfect analgesia was produced, while the sensation of contact and movement was left. Dr. Lucas-Championniere himself tried the method principally for other minor operations, with equally successful results. From the account given guaiacol would appear to be as powerful as cocaine and is not followed by any unpleasant effects. The full effect does not manifest itself until five minutes after the injection, and in most cases it seems best to allow seven or eight to lapse before operating.—*Jour. of Brit. Dent. Ass'n*.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

OUR FIRST YEAR'S WORK.

With this issue we close the first volume of the DIGEST. Starting with the plan of conducting a journal which should be different from any other, it has taken some time to simplify and arrange the work, as furnishing the digested thought of important articles has, we believe, never before been attempted in dental journalism. We are well aware that there is still much room for improvement; but we expect to greatly better this feature as we proceed, and to make the journal truly one in which the dentists can find everything of importance and interest published which is of any use to them, thus effecting a great saving of time and money.

This journal is untrammelled by any trust or combination, lawful or otherwise, and is influenced by nothing except the wish to serve the best interests of the dental profession. As the Protective Association stands for the freedom of the dentists, so this journal, its organ, stands for freedom of expression, and its pages are open for the free and dignified discussion of any topic of general interest to the profession.

No part of our revenue is derived from any advertisements of any dental trust, as we presume, similar to its rules of trading, no one in such combination would be allowed to advertise with us. Therefore, the support of the journal, both intellectually and financially, must come from the dentists and their friends, not from their enemies. From the help we have already received we are encouraged to redouble our efforts. Thanking our friends for their past favors and bespeaking a continuance of the same, we close our first volume with best wishes for the New Year.

THE WORK OF THE DENTAL PROTECTIVE ASSOCIATION.

We publish in this issue the commencement of a series of articles on the history of the Protective Association and litigation connected therewith, with a view of showing the members and the profession generally what has been accomplished, hoping thereby to interest them in the work yet before us.

As the success of the Association is no longer an experiment, we see no reason why the profession at large do not all unite with it—we say, no longer an experiment, the facts of the situation prove the proposition. The Association has been in active operation for eight years, during which time it has absolutely stopped all annoyance to the profession from patent claimants, has saved the profession, it is safe to say, at a low estimate, \$5,000,000, and those joining it have paid only the membership fee, ten dollars, as there have been no annual dues, so that the average cost per year has been but one dollar and twenty-five cents, which is less than the annual dues of dental societies. What we want now is a complete banding of the profession into this organization. The saving of money and annoyance is only a part of the good of the Association is doing. The banding of the dentists into an organization where there are no politics and no strife and everything is harmonious, is of inestimable value in the way of increasing the fellowship and co-labor which are so much needed now in the dental profession.

To disband the organization at this time would throw the whole dental profession into trouble and annoyance as deep as ever, for we being without an organization, those scheming to secure our earnings would have nothing to check them, and no individual member can afford to resist even the flimsiest of patent claims. There are numerous patents on various methods and appliances now in use by the profession, the claims of which have never been urged, simply because the Protective Association stands as a barrier to such claims.

We feel sure that if those outside of the Association fully understood the situation, nearly all would unite with us, and it would require very little effort to accomplish this end.

Each member has had sent him a list of those in his state who are members, and if they will take some concerted action and

divide up the territory, the perfecting of the organization, by getting the respectable practitioners into our ranks through personal solicitation, will soon be accomplished. As the permanency of the present organization depends upon this increase, may we not hope that this effort will be made.

MORE THOROUGHNESS.

Under the head of "A Blot on the Profession," we publish in this issue an article from the pen of the well known teacher and practitioner, Dr. Geo. H. Cushing. This article is a well-timed plea for more attention to and thoroughness in the operation of removing the deposits from the necks of the teeth. The cases he cites of neglect on the part of reputable practitioners could be greatly increased if the observation of others were given. We could certainly tell of numerous instances wherein the operators had neglected this important duty. The reason why this operation is so often neglected we should say comes in part, at least, from the fact that there is no fascination in performing it. Another weighty reason is the lack of appreciation of the importance of the operation, and of the skill required to successfully perform it. We know that in the offices of some skilled dentists this task is almost invariably turned over to the office-girl, although she is not supposed to know anything about dentistry. This is further proof that the skill required is not appreciated. But the main reasons are probably carelessness, indifference, and a lack of disposition to perform an uninteresting and, we will add, very difficult operation, as removal of the sanguinary deposits from some positions on the teeth is very difficult, if it can be done at all in extreme cases. Whatever the cause for the neglect may be, it is a great wrong to the patient and is more than ordinary carelessness.

EAR-WAX.—To dislodge hard Impacted Wax from the ear, Dr. Dundas Grant recommends a solution of bicarbonate of sodium, fifteen grains, three drachms of glycerine, and distilled water sufficient to make an ounce; to be dropped into the ear, warm, followed by persistent syringing.

A HISTORY OF THE WORK THUS FAR ACCOMPLISHED BY THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES.

It is my intention, in this and following numbers of the DIGEST, to give a history, brief as possible, of the organization and work accomplished by the Dental Protective Association, including history of suits.

By way of showing the necessity of organization, I will briefly describe the conditions surrounding us and the schemes for getting our earnings. After the expiration of the Cumming's patent, which was on the application of vulcanite rubber to dental purposes, and was so successfully enforced that the dental profession paid royalty on it for the lifetime of the patent, another corporation was formed and known as the International Tooth Crown Company. The promoters of this Company, seeing the favorable condition of the dental profession, they having been trained by the Rubber Company to pay royalty, and with the skill and experience which comes from long practice, were able to organize just the kind of a company to best secure the object desired and make the dentists do their bidding.

This organization soon began giving the dentists the greatest annoyance possible. They had taken out and acquired patents—numbering from thirty-five to fifty—which covered all manner of operations and devices, making it impossible to practice dentistry without infringing many of their patented claims. And having in their employ the attorneys and former agents of the old Goodyear Dental Vulcanite Company, they were fully equipped to again yoke the dental profession and make them pay royalty in much greater amounts and by much more disgraceful methods than were practiced by the old Rubber Company. They had commenced issuing licenses and bringing suits as early as 1886; already had a number of dentists under injunction, and E. S. Gaylord, of Connecticut, was fighting their claims single-handed until an able committee of New York dentists, of which A. L. Northrup was chairman, took up the fight.

This committee, by appealing to members of the profession and dental societies, secured funds and came to the aid of those who

were being sued by the Crown Co., and after a vigorous effort on their part the suits were argued and the Crown Co. was defeated in their claims on the Richmond Crown, and various patents on methods of cutting off crowns, driving out pulp with wooden peg without pain, and preparing root for crown and filling end of root. The company succeeded, however, in having the Low Bridge patent sustained, but, as I understand it, the committee had not considered this patent of much importance, nor did they have much time nor the advantages of organization through which to collect testimony, and on this account the Low Bridge patent had a decision in its favor, and this decision went so far as to declare all other bridge patents an infringement of the Low. The Crown Co. appealed from the decision of the lower courts on the Richmond Crown patent and carried it to the Supreme Court of the United States.

The expense of this litigation had more than exhausted the money raised by the committee; the profession had become demoralized, and the fight in this way had to be abandoned. In the meantime the Crown Co. were taking advantage of the situation and were on a vigorous campaign for licensees. With the Low Bridge patent sustained, those appealed in which they were defeated, and owning several patents on various crowns and methods of crowning, also patents on articulating bites, methods and materials for filling roots—the license contract showing thirty-eight patents—fully equipped and unmolested, they were making rapid progress in securing licensees in all parts of the country. The following is a copy of the license contract which the profession were compelled to sign or abandon practice:—

INTERNATIONAL TOOTH CROWN COMPANY.

LICENSE AND AGREEMENT.

WHEREAS, International Tooth Crown Company, a Corporation organized pursuant to the Laws of the State of New York, is the owner of certain Letters Patent heretofore granted, for inventions and improvements in Artificial Dentures or Dental Processes, including the following, to wit:

United States Letters Patent, No. 144,182, dated November 4, 1873; No. 238,940, dated March 15, 1881; No. 245,782, dated August 16, 1881; No. 224,355, dated February 10, 1880; Nos. 277,934, 277,933, 277,935, 277,936, 277,937, 277,938, 277,939, 277,940, 277,941, 277,942, 277,943, all dated May 22, 1883; No.

282,119, dated July 31, 1883; Nos. 318,581, 318,579 and 318,580, dated May 26, 1885; No. 330,431, dated November 17, 1885; Nos. 352,784 and 352,785, dated November 16, 1886; Nos. 354,356 and 354,357, dated December 14, 1886; and No. 357,044, dated February 1, 1887; and whereas said Company may hereafter become owner of other Letters Patent relating to similar subjects hereafter to be granted or acquired; and whereas, although in the Circuit Court of the United States two of said Letters Patent, to wit, said Nos. 277,941 and 277,943, have been held to be invalid, and said Company's Bill in Equity to restrain infringement of same has been dismissed in consequence; but said Company is, notwithstanding dissatisfied with such holding and dismissal, and has duly perfected its appeal to the Supreme Court of the United States therefrom and from the decree entered in consequence, and said appeal is now pending in said Supreme Court in the case of said Company, appellant, vs. Edward S. Gaylard, et. al., respondents, and said Company proposes on such appeal to establish thereupon the validity of said Letters Patent Nos. 277,941 and 277,943, notwithstanding the decree of said Circuit Court, and whereas of County of and State of in view of all the premises is nevertheless desirous of acquiring from said Company the right or privilege of using any and all the said inventions and improvements in Artificial Dentures, according to the specifications of the Letters Patent above described; it being stipulated and agreed by the said that he will not at any time contest the validity of said Letters Patent nor any of them, nor his infringement thereof. Now, therefore, this agreement made between the International Tooth Crown Company, party of the first part, and the said party of the second part, witnesseth that the the said International Tooth Crown Company, for and in consideration of the sum of dollars, and of the payment of the royalty hereinafter agreed to be paid, and the faithful performance by the party of the second part of the conditions herein specified, doth hereby grant unto the party of the second part a right or privilege, under said patents, to use the said inventions for the production of Artificial Dentures in his own business as dentist, and for his own patients only, and for no other purpose, and to vend the Artificial Dentures so produced to his own patients only within the said of and not elsewhere, during the time for which this right is granted, upon the following conditions, viz.: The said party of the second part shall keep full, true and accurate books of account of every operation in dentistry in which any said dentures, including "Crowns" or "Bridges," so-called, are set upon or attached to roots or teeth in the mouth, and of every operation or every piece of work substantially like those patented to, or patents covering which are owned by, the International Tooth Crown Company; and that he will enter or cause to be entered in said book the name of the patient, the date of the operation, the gross sum charged for said operation, and the gross sum received for said operation, and that he will on the first days of January, April, July and October of each year, make to the party of the first part a full, true and accurate statement, in writing, in the form prescribed by the party of first part, and under oath if desired, of all the sum or sums of money so charged or received by him for any such operation or

piece of work aforesaid during the three months last preceding such statement, and that he will at the same time that he makes said statement, and as royalty for the use of all inventions and improvements purporting to be secured by said Letters Patent, as well as royalty for the use of any of them, pay to the party of the first part per cent. of all the gross sum or sums of money so charged by him. Said party of the second part further agrees that said books of account shall be open at all reasonable times to the inspection of the authorized agent of the party of the first part; that the said privilege shall not be assigned, sold, transferred, or otherwise disposed of in any manner. That the party of the second part shall not by himself, his agents or servants, directly or indirectly, use or practice said invention, or vend said dentures for or to other dentists, nor in any way except in his own business and for his own patients. And the said party of the second part agrees that in case he shall advertise said process or operations or dentures hereinbefore referred to, either in any publication, or by notice or circular, or otherwise, he will not in said advertisement, notices, or circulars, make any reference to or state directly or indirectly the price which he expects to receive for such work or his charges therefor. The said party of the second part further agrees that he will in no case nor under any circumstances apply to a root or make for a patient a tooth crown like those patented or hereafter patented to the party of the first part, or a series of tooth crowns, or bridges containing tooth crowns or artificial dentures, at a less price than ten dollars for each crown or tooth so applied, and that he will in no manner countenance or encourage infringements on the Letters Patent or inventions above described or any of them, but shall at all times recognize the validity of said patents. And it is further agreed that the party of the second part shall not knowingly admit as a partner or employee in his business as a dentist, directly or indirectly, any person or persons who stand enjoined from the use and practice of said inventions by the decree of any competent court; nor shall anything in this right contained be any protection or defense to the person or persons so enjoined. And the party of the second part, for and in consideration of the privileges herein granted, hereby covenants and agrees to hold the within granted rights and privileges, subject to the terms and conditions herein specified, and in case of failure on his part to comply with all or any of them, then this right shall be terminable at the election of the party of the first part, and upon a written or printed notice thereof served upon the party of the second part, or published in a paper having circulation in the county where the party of the second part resides, or is doing business.

And it is further agreed that this right shall commence as of the day of 188 , and shall continue in force until the first day of 188 , unless revoked by the party of the first part on account of violations of its provisions by the party of the second part, but such revocation shall not release or discharge the party of the second part from his covenants or from any amount due from him.

It is further covenanted and agreed by the party of the second part that upon expiration of this right, whether by his own breach of covenants herein, or by lapse of time, he will keep and observe every covenant, agreement or

stipulation herein in regard to the validity of said Letters Patent and all of them and the title thereto.

For the true and faithful performance of every covenant herein contained the said..... for himself, his heirs, executors administrators and assigns, does bind each and every one of them unto the said party of the first part, and its successors and assigns in the sum of twenty-five hundred dollars of lawful money of the United States liquidated and agreed damages. The party of the second part further covenants and agrees that in case of his violation of any of the clauses of this agreement and upon notice served upon him as provided in this agreement the party of the first part may apply for and obtain from a suitable court an injunction under said Letters Patent or any of them, hereinbefore set forth, restraining the party of the second part from any infringement of said Letters Patent; and this agreement is to be taken as a consent that such injunction may forthwith issue, and the party of the second part agrees that he will not oppose the issuing of an injunction when applied for, as hereinbefore set forth. The International Tooth Crown Company, for and in consideration of the faithful performance of the covenants and agreements hereinbefore contained, agrees that it will speed said appeal as much as possible and will protect the rights of the party of the second part herein so far as it may be reasonably able, and that it will endeavor so far as possible to establish a monopoly under the Letters Patent hereinbefore set forth on any of them.

In witness whereof, the party of the second part has hereunto set his hand and seal; and the said International Tooth Crown Company, by their Attorney in fact who is duly authorized in this behalf, hath caused its name to be subscribed and its corporate seal to be affixed theday of.....
188 .

INTERNATIONAL TOOTH CROWN COMPANY.

One of the various methods they adopted was to get clinicians appointed at society meetings to instruct and work up an interest in methods on which they held patents, also to employ instructors to go amongst the dentists and teach their patented methods. Then their agent following had more definite knowledge as to who to approach as infringers. After securing as many licensees as possible in a town, the agent would, by way of reward to the victims, insert this notice in the local papers:—

DENTAL NOTICE.

This is to certify that.....Office No.....street, is our only licensee, to make and to furnish to patients in the city of any tooth crowns or bridge work, so-called manufactured under the patents of the International Tooth Crown Company. Said patents are construed to cover the most practical forms of artificial dentures now commonly known as Crown and Bridge-work.

All persons are hereby cautioned against obtaining any such artificial dentures from any dentist not licensed, as none are authorized except by the written license of said company.

The full legal penalty will be promptly enforced against all dentists, as well as their patients, making unauthorized use of any such patented denture.

A reward will be paid by said Company to persons furnishing it with any cases of bridge-work of one, two or more crowns or bridges made by any dentist not licensed by this Company.

INTERNATIONAL TOOTH CROWN CO.

By JACKSON W. ALWARD, General Manager.

Dated....., 188

Then by way of further enforcing their schemes, suits were commenced against several of the prominent men in different cities, so before the Protective Association was organized a large number of suits had been begun. Nor was this all, as five or six other companies had been formed with numerous patents on various methods of practice, details of which I will treat of later. Suffice it to say that it appeared to me as if our peace, manhood and prosperity were threatened on all sides.

After much thought and planning the Dental Protective Association was adopted and first presented to the profession at a meeting of the Odontographic Society of Philadelphia, in December, 1888.

It must be remembered in this connection that the unsuccessful attempts in former years to get united action on the part of the profession made it much more difficult to form this Association, and the lack of encouragement by the profession, and the urgent advice given me by leading minds to abandon the scheme, would have discouraged a less hopeful projector.

The one prominent thought that kept me from relenting was that a profession with any manhood could not be thus longer imposed upon, and that the idea of 18,000 dentists submitting to the humiliation and hardship of signing licenses, such as here printed, and paying royalty to a half-dozen patent companies on upwards of one hundred patent claims, none of which were worth the paper they were written upon, if properly tested, must eventually cause every dentist in the land to send the ten dollar membership fee and unite with the Association, and that surely they would as soon as the situation was understood, confidence in the plan adopted and faith in the integrity and ability of the promoters secured.

The first three months I did not succeed in getting a sufficient number to join to pay one-third of the retainer to the attorneys, whom I felt sure we must have in preference to any others, owing

to their knowledge of the workings of our patent litigation with the Rubber Company, and besides I knew they possessed superior ability as patent lawyers. Therefore, I paid the retainer, \$500, out of my own bank account. It was quite important also that we should file answers and checkmate the legal steps taken against numerous members of the profession in different parts of the United States, therefore it would not have been wise to wait until we had a big list of members. Consequently, I took control and commenced filing answers where members were sued, and before I had sent out more than two or three circulars, say two months after the work of organizing and defending was started, I had stopped these companies from securing licensees, which fact soon caused them to stop active canvassing. Even with this improved condition it was many months before I had any considerable number to unite with us. It required the sending out of circular after circular to the profession, visiting many societies, and making personal appeals, besides much personal solicitation before we reached five hundred members. After each circular I would hope, knowing the good the Association was doing, that this time we would have a more liberal response than ever before.

During all this time I was hunting testimony, looking up witnesses and taking care of numerous suits that were being brought against members in all parts of the country. A history of these suits will follow in other numbers of this journal. J. N. CROUSE.

(TO BE CONTINUED.)

News Summary.

TO REMOVE BLOOD STAINS.—The *Zentralblatt f. Gyn.* states that the best way to remove blood-stains from towels, etc., is to soak these in warm water to which a teaspoonful of tartaric acid has been added. No soap is needed.

TEST FOR INSANE PERSONS.—Buston Ward, the celebrated English physician, says: "There is one infallible symptom indicating whether a person is sane or not. Let a person speak ever so rationally and act ever so sedately, if his or her thumbs remain inactive there is no doubt of his or her insanity. Lunatics seldom make use of their thumbs when writing, drawing, or saluting."

CAMPHOR FIENDS.—The recent discovery, on the streets of St. Louis, of a woman unconscious from the effects of an over-indulgence in camphor, has brought to light the fact that the habit, while a strange one, is by no means a rarity; a number of druggists and physicians testify to this. Camphor-eating is not so pronounced an evil as the excessive use of some other drugs, but it is nevertheless an existent evil.—*North American Medical Review.*

COPPER POINTS.—C. D. Hand recommends the use of copper points, made from wire, such as are used for electric bells, thus: Fill the apex of root with chloro-percha. Moisten a gutta-percha point in chloroform and press down. Heat the copper point and drive home. If the proper length is first taken and the larger end flattened slightly, it is a support for alloy which will adhere closely to the copper that cannot be excelled. Employing first the gutta-percha point prevents any discoloration of the tooth.

EMPYEMA OF FRONTAL SINUS.—It is not easy to diagnose an empyema of the frontal sinus attended with a bulging backward and downward of the orbital plate. Catheterism through the nares is most practicable, but this manoeuvre is extremely difficult in the normal state, though simple and effective when the sinus is distended. Amaurosis and amblyopia are present in certain cases when the pus takes a backward direction and presses on the optic nerve as it enters the orbit. Pain is constant, the visual field is narrowed, and the disturbances of all the ocular functions are extreme. In all these cases one should first endeavor to drain through the nose, but if this fails, resort must be had to the trephine, though this leaves a scar.—*G. Martin, in Annales de Medicine.*

A VALUABLE TOOTH-PASTE.—No doubt our sailors need all the attention paid to their teeth which is possible, and here is an advertisement in Japanese-English which was widely circulated in English ships: "In the East there was no good sanitary tooth-paste was sure to cure and safe to use, so our company resolved to prepare a good natured paste and succeeded. The efficiencies of this paste are as following: Firstly, to strengthen and preserve the nature of the tooth: Secondly, to tight the tooth with thingams: Thirdly, to defend a hemorrhage arisen by frictrir: Fourthly, to take away the offensive smell of the mouth: Fifthly, to difent the putrifaction of tooth and so prevent the carious one. Any one who uses this paste will certainly discover that it is of a very wonderful and valuable nature, by his practice. To use this paste, it is necessary to vinse the mouth with walir aftr sabling the tooth carefully by the tooth brash." A good-natured paste which has succeeded ought certainly to tight the tooth with thingams, if not with thingambobs, and to prevent the carious one; but how is it, however good-natured, to defend a hæmorrhage, however arisen? And how is the tooth sabled? Oh, mysteries of English as she is wrote!—*British Journal of Dental Science.*

LACTIC ACID IN EPITHELIOMA OF FACE.—In November last I was called to see a patient, aged 65 years, who for five or six years had a sore situated on the cheek, and that within three months had begun to develop very rapidly. Prior to this it had gone through the usual characteristics of a slow-growing epithelioma. The ulcer was unusually thickened and indurated, about the size of a silver dollar, fully two-thirds of the surface occupied by an elevated, indurated, thickened, characteristic wall. Remembering Von Mosetig Moorhof's declaration that Lactic Acid has the power of attacking and destroying cancerous growths without injuring healthy tissues, I concluded to resort to this agent, and accordingly had it prepared in the form of a paste along with silicic acid, and of a strength of about fifty or sixty per cent. Patient suffered very little pain from this; indeed, at no time was the suffering very acute. At the end of a week the strength of the paste was increased, and the application continued every day. Soon the surface of the sore began to granulate; the walls broke down like magic; and when the patient was discharged in the succeeding January, there remained only a perfectly clean cicatrix, smooth and somewhat reddish, about the size of a penny. Note that in six or seven weeks from the first application the man was entirely well.—Doctor I. M. BLOOM, in *Journal of Cutaneous and Genito-Urinary Diseases*.

ITCHING OF THE MOUTH.—Tommasoli relates the case of a peasant woman, 33 years old, without anything remarkable in her history, who for four years had suffered with an itching and biting sensation in the cavity of the mouth, which compelled her to bite her tongue and to compress the mucous membrane of the cheeks between her teeth. The affection was aggravated in paroxysms, and occasionally she was entirely free from it. The chief situation of the abnormal sensation was in the tongue, which often bled from severe bites. Examination of the cavity of the mouth showed on the mucous membrane of the cheek two whitish, almost horizontal and symmetrical stripes, which were nearly as long as the alveolar processes, to which they corresponded roughly in their course and of which a slight impression was to be seen. Beginning at the last molars, these stripes reached almost to the angles of the mouth. The epithelium on these stripes was moist and soft, but not apparently destroyed. The whole looked like a linear zone of œdematous swollen mucous membrane. Yet, on palpitation, the stripes felt like cords, indolent and not yielding in the slightest to digital compression. All the rest of the mucous membrane, as well as the tongue, appeared sound. The author believes that this was a chronic paroxysmal paræsthesia of the buccal mucous membrane, giving rise to actual changes in those parts of the mucous membrane that were most affected. He gives the name *preitus* to this affection.—*Deutsch Medicinal-Zeitung*.

INTOXICATING BEVERAGES REPLACED BY TEA AND COFFEE.—Medical men, as well as the people in general, are becoming more and more convinced of the baneful influence of excessive alcoholic indulgence. The former by exact

scientific observations and the latter by experiences in life. Both, therefore, have learned from experience; and it is a sign of the times, a significant fact, that in England, a country in which the consumption of alcoholic beverages is as great, if not greater, than that of any civilized country, a steady decrease in the consumption of beer and spirits has taken place since 1876. These stimulants having principally been replaced by tea and coffee.

A record of the consumption, from 1861 up to the present time, of tea, coffee, cocoa and chicory, of alcoholic beverage and of tobacco, compared with the increase of population is of much interest. The most striking feature in the purely diagrammatical return, which has been recently issued and which has been ordered by the House of Commons to be printed, is, according to the *London Lancet*, that while an enormous increase in the consumption of tea, coffee, etc., has taken place—the line illustrating this extending as a diagonal across the diagram till it reaches the top right-hand corner (1893)—there has been a steady diminution in the consumption of both beer and spirits, the lines indicating the last two being practically parallels, not only with one another, but approximately with the base of the diagram also. Between 1861 and 1862 the total consumption of tea, etc., was 120,000,000 pounds; it then steadily rose until in 1893 it stood at 265,000,000 pounds. In the same period the population increased from 28,500,000 to 38,500,000, so that, while in 1861 the consumption of tea, etc., per head was 4.38 pounds, in 1893 it was 6.90 pounds. In regard to wines and spirits, the consumption in 1861 was equal to 35,000,000 gallons, with the population at 28,500,000, and in 1893, with the population at 38,500,000, the consumption was 52,000,000 gallons, so that per head, it was equal to 1.22 gallons in 1861 and in 1893 to 1.35 gallons, the highest record being 1.80 gallons in 1876, since which the consumption has steadily diminished.

The consumption of beer exhibits a similar rise and fall. Thus, in 1861, the amount consumed per head was 24.3 gallons, in 1874, 34 gallons, and in 1893, 29.6 gallons, the total consumption varying from 20,000,000 gallons in 1861 to 31,000,000 gallons in 1876, and 32,000,000 in 1893, the population having increased 10,000,000. Coming to tobacco, in 1861, when the duty was 3s 1.8d per pound, the total consumption was 34,000,000 pounds, being equal to the use per head of 19¾ ounces; in 1863 the duty on cigars was reduced from 9s 5.4d to 5s per pound, and the consumption then rose to 21½ ounces in 1865, to 23 ounces in 1877. In the following year—1878—an increase of 4d per pound on all tobacco was made and an extra 2d per pound on cigars in 1879, with the result that after that date the consumption fell to 22½ ounces. From this time it gradually recovered, till 1887, when the duty on tobacco being reduced 4d per pound and on cigars 6d per pound, the consumption quickly rose till it attained to 26 ounces per head of the population in 1893. The total consumption in 1893 was 62,000,000, while in 1861 it was 34,000,000 pounds—*i.e.*, an increase of 28,000,000 pounds for increase in the population of 10,000,000. To sum up, this interesting return shows that there is a decided diminution in the demand for intoxicating stimulants, while there is a very considerable increase in the demand for non-intoxicating stimulants, principally tea and coffee.—*Medical Review*.

Notices.

AN OMISSION.—In preparing the lists of members of the Dental Protective Association, the name of Dr. W. H. Neall, 1617 Arch St., Philadelphia, was omitted from the Pennsylvania list.

ODONTOGRAPHIC SOCIETY OF CHICAGO.

The annual election of officers of this society, held Dec. 9, 1895, resulted as follows: President, Dr. C. E. Merhoff; vice-pres., Dr. E. R. Carpenter; sec'y., Dr. H. H. Wilson; treas., Dr. Edmund Noyes. Board of Directors, Drs. R. B. Tuller, C. E. Bentley, and J. G. Reid. Board of Censors, Drs. A. B. Allen, H. A. Drake, and G. W. Schwartz.

UNION CONVENTION OF WESTERN PENNSYLVANIA.

A union convention of all the dental associations of Western Pennsylvania will be held in Pittsburg, Pa., Jan. 21-23, 1896. Many of the prominent men of the profession have promised to be in attendance. A large exhibit of electrical appliances is expected. A cordial invitation to be present and take part in the meeting is extended to all dentists. Drs. J. A. Libbey, H. W. Arthur, O. L. Hertig, Geo. R. Shidle, M. George, J. G. Templeton, Committee.

Obituary.

RESOLUTIONS ADOPTED BY THE HARVARD ODONTOLOGICAL SOCIETY ON THE DEATH OF DR. THOMAS H. CHANDLER.

In the death of Thomas H. Chandler, A. M., D. M. D., the Harvard Odontological Society recognizes the loss to the dental profession of a man of rare attainments, and to the city of Boston of one of her most honored and respected citizens.

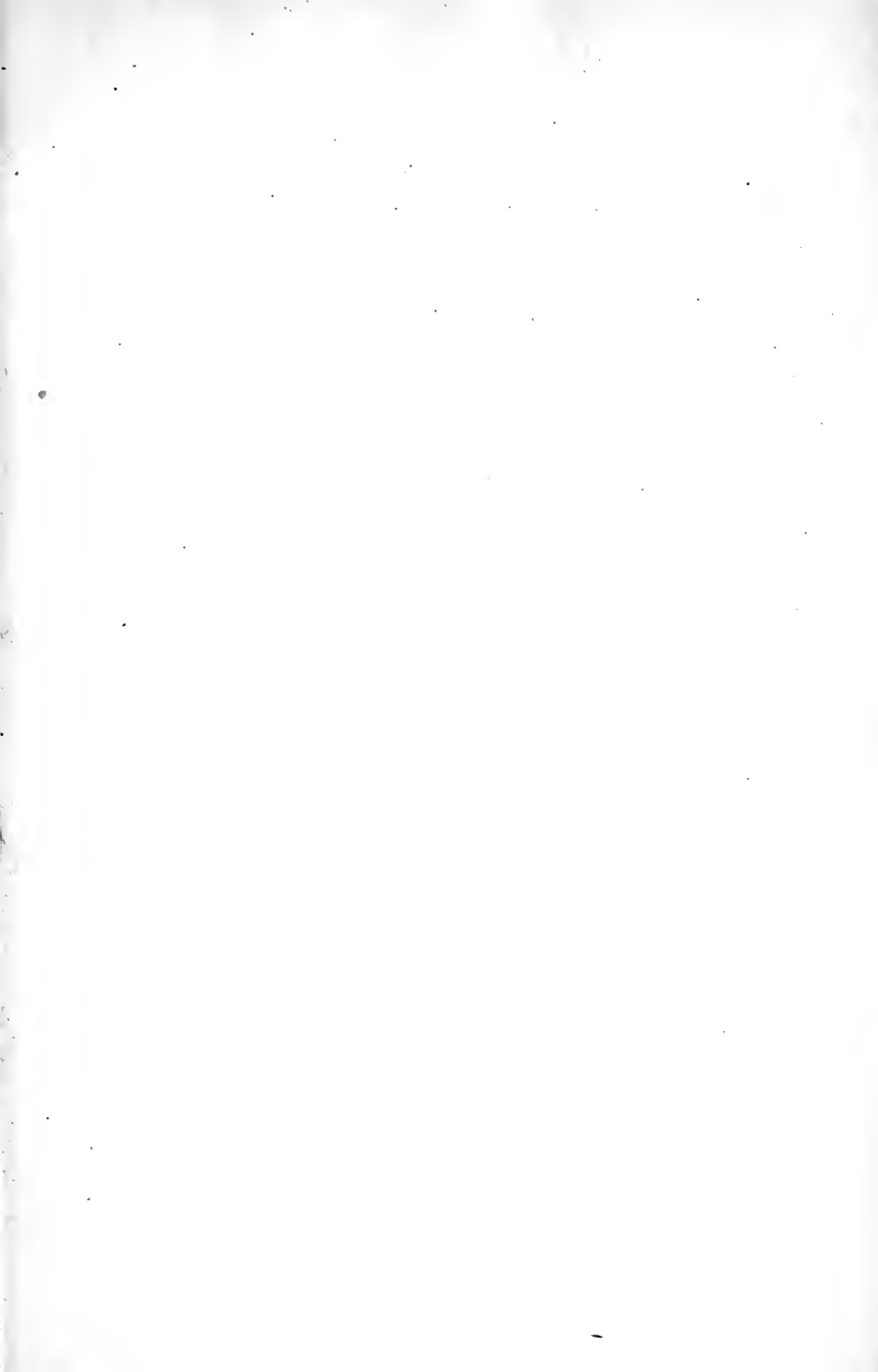
This Society, bearing in mind with grateful appreciation his long years of untiring devotion and service to the interests of the School, and the imprint upon the calling of dentistry which such a life as his must always leave behind it, desires to place upon record the following resolutions:

Resolved, That in the death of Dr. Chandler the members of this society recognize individually that they have lost not only an esteemed brother dentist, but a warm personal friend as well. That to his family we extend our most sincere and heartfelt sympathy. That a page of our records be set aside in honor and affection to his memory.

EDWIN C. BLAISDELL,
CHARLES H. TAFT,
WILLIAM H. POTTER,

Committee.

BOSTON, Nov. 21, 1895.







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